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**Dallas McCarver**

**THE SHAPE  
OF THINGS  
TO COME?**

**14**

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LIFTS**

**FOR MASS!**

**X**

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**HARDCORE  
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**GET THE ULTIMATE V-TAPER**

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SEPTEMBER 2015



# HI-TECH'S ELITE TEAM!



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EUROPA  
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# HYDROXYELITE®

**COMPARE TO OXYELITE PRO™\***

**ANOTHER BLOCKBUSTER WEIGHT LOSS AID  
FROM THE DIET & ENERGY SPECIALISTS -  
HI-TECH PHARMACEUTICALS!**

**SINCE THE DISCONTINUATION OF DMAA BY OTHER COMPANIES  
HAS LED TO THEM SPENDING MILLIONS AND MILLIONS OF DOLLARS  
ADVERTISING THE NEXT BEST THING..... BUT WHY WOULD YOU  
WANT THAT IF YOU COULD HAVE A NEW & IMPROVED VERSION  
OF WHAT YOU KNOW WORKS? YOU WOULDN'T. HYDROXYELITE®  
BY HI-TECH TO GIVE RETAILERS AND CONSUMERS EXACTLY WHAT  
THEY WANT.**



IFBB Bikini Pro  
Juliana Daniell

**THE HYDROXYELITE® LINEUP...1,3 DIMETHYLAMYLAMINE (DMAA),  
CAFFEINE, RAUWOLFIA CANESCENS (A.K.A. RAUWOLSCINE), BAUHINIA PURPUREA  
EXTRACT, BACOPA MONNIERI EXTRACT, CIRSIUM OLIGOPHYLLUM EXTRACT,  
AND GARCINIA CAMBOGIA EXTRACT.**

†These statements have not been evaluated by the Food and Drug Administration. This product is not intended to treat, cure, diagnose, or prevent any disease. This product should not be used in place of or as a substitute for recommendations by your healthcare professional. No clinical study has been performed on HydroxyElite™. These statements are based upon the active ingredients: (Bauhinia Purpurea L. (Leaf And Pod) Extract; Bacopa (Leaf) (Bacopa Monnieri) Extract; 1,3 Dimethylamylamine HCl; Cirsium Oligophyllum (Whole Plant) Extract; Rauwolfia Extract (Leaf And Root); Garcinia Cambogia Extract; Hydroxy Citric Acid.

WARNING: this product can raise your blood pressure and interfere with other drugs you may be taking. Talk to your doctor about this product.

\*This product is not manufactured or distributed by U.S.P. Labs.



# PHOSPHAGEN®

**HI-TECH PHARMACEUTICALS IS LAUNCHING  
A NEW AND IMPROVED PHOSPHAGEN®!**



- 1) ENHANCE THE ANABOLIC EFFECT OF GREATER MUSCLE CELL VOLUMIZATION, INCLUDING THROUGH INCREASED PROTEIN SYNTHESIS**
- 2) HEIGHTEN AND MORE RAPIDLY MOBILIZE CONCENTRATIONS OF PCr MUSCLE FUEL TO FACILITATE THE RAPID AND SUSTAINED TRANSFER OF HIGH-ENERGY PHOSPHATE WITHIN THE PHOSPHAGEN SYSTEM FOR ATP RESYNTHESIS, PHOSPHAGEN® CONTAINS THE MOST POTENT FORMS OF CREATINE EVER DISCOVERED: CREATINE NITRATE, DISODIUM CREATINE PHOSPHATE TETRAHYDRATE, CREATINE PHOSPHATE, AND CREATINE HCl. THUS, THE BODYBUILDER WHO WISELY CHOOSES PHOSPHAGEN® OVER ANOTHER TYPICAL CREATINE PRODUCT WILL HAVE THE EXTRA AMOUNT OF MUSCLE FUEL AVAILABLE TO COMPLETE THE ONE ADDITIONAL REP REQUIRED TO PULL THE TRIGGER FOR MUSCLES TO GROW.**

**PHOSPHAGEN®, BY HI-TECH PHARMACEUTICALS...  
MORE WEIGHT... MORE REPS... MORE MUSCLE!**

[www.hitechpharma.com](http://www.hitechpharma.com)

**For more information, please call 1.888.855.7919.**



# JACK'D UP®

**JACK'D UP® - COMPARE TO JACK3D™\***  
**NOT ALL PRE-WORKOUTS ARE CREATED EQUAL.**  
**NOT ALL PRE-WORKOUTS WILL GET YOU**  
**JACK'D UP EITHER!**

**JACK'D UP® BY HI-TECH PHARMACEUTICALS**  
**IS THE ULTIMATE PRE-WORKOUT THAT**  
**CONTAINS HARD TO FIND DMAA!**



**JACK'D UP™**  
**FOUR DELICIOUS FLAVORS:**  
**POUNDING PUNCH, GRAPE, PINEAPPLE**  
**AND WATERMELON.**

**YOU WILL IMMEDIATELY FEEL AN INTENSE SENSATION OF ENERGY TO HELP YOU BEAST THROUGH YOUR WORKOUTS. THIS PRODUCT IS KNOWN TO BOOST NITRIC OXIDE LEVELS WHICH PROMOTE MUSCLE PUMPS AND VASCULARITY. THIS ADVANCED PRE-WORKOUT BLEND CONTAINS 4 DIFFERENT FORMS OF CREATINE TO AID IN MUSCLE GROWTH AND MUSCLE FULLNESS.... CREATINE NITRATE, CREATINE HCL, DISODIUM CREATINE PHOSPHATE, AND CREATINE MONOHYDRATE ARE THE MOST POTENT COMBINATION OF CREATINE SERIES COMPOUNDS YOU WILL HAVE EVER TAKEN! TAKE YOUR GAINS AND LIFTS TO ANOTHER PLANET AND GET JACK'D WITH JACK'D UP™ BY HI-TECH PHARMACEUTICALS.**

**JACK'D UP®**  
**THE ULTIMATE PRE-WORKOUT FORMULA†**

Available at:

 The Internet's Premier Nutrition Superstore				
				
				

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# YOUR **BEST** TRAINING PARTNERS

PREWORKOUT POSTWORKOUT



## COMPARE FOR YOURSELF

A Comparison of Active Ingredient Amounts in AML PreWorkout with 8 Top Competitors

	Caffeine Anhydrous	Citrulline Malate	Creatine Monohydrate	Betaine	Beta-Alanine
	AMOUNTS PER SUGGESTED SERVING				
<b>PREWORKOUT</b>	400mg	6g	5g	2.5g	2g
COMPETITIVE BRAND #1	DU-PB	NONE	1g (as Creatine Nitrate)	DU-PB	1.6g
COMPETITIVE BRAND #2	DU-PB	NONE	DU-PB	DU-PB	NONE
COMPETITIVE BRAND #3	DU-PB	DU-PB	DU-PB	DU-PB	DU-PB
COMPETITIVE BRAND #4	175mg	1.5g	3g	NONE	1.5g
COMPETITIVE BRAND #5	DU-PB	NONE	NONE	NONE	NONE
COMPETITIVE BRAND #6	190mg	NONE	NONE	NONE	1.6g
COMPETITIVE BRAND #7	DU-PB	NONE	NONE	NONE	2g
COMPETITIVE BRAND #8	350mg	6g	2g (as Creatine HCl)	NONE	1.6g

DU-PB = Dosage Unavailable, Proprietary Blend  
 ■ = Highest Dosage

A Comparison of the Top 3 Proven Post-Workout Nutrients

	L-Leucine	Creatine Monohydrate	Betaine
	AMOUNTS PER SUGGESTED SERVING		
<b>POSTWORKOUT</b>	4g	5g	2.5g
COMPETITIVE BRAND #1	DU-PB	NONE	NONE
COMPETITIVE BRAND #2	2.5g	NONE	NONE
COMPETITIVE BRAND #3	DU-PB	NONE	NONE
COMPETITIVE BRAND #4	DU-PB	NONE	NONE
COMPETITIVE BRAND #5	2.5g	NONE	NONE
COMPETITIVE BRAND #6	2g	NONE	1.25g
COMPETITIVE BRAND #7	DU-PB	NONE	NONE
COMPETITIVE BRAND #8	3.6g	2g (as Creatine HCl)	1.5 g

SCIENCE > INNOVATION > RESULTS

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LOOK FOR US AT





NOW AVAILABLE IN STORES NATIONWIDE

# THERMOHEAT®

"I WAS THE **FIRST** TO INTRODUCE AND BRING TO MARKET AN EPHEDRA/CAFFEINE STACK AT TWIN LAB, CALLED **RIPPED FUEL**.

I PERSONALLY BELIEVE

**THERMOHEAT**

IS EVEN **BETTER** THAN MY **ORIGINAL RIPPED FUEL FORMULA**."

-STEVE BLECHMAN,  
FOUNDER, ADVANCED MOLECULAR LABS



**GREAT THINGS**  
COME TO  
THOSE WHO  
**SWEAT**  
THERMOHEAT

AS  
SEEN  
ON TV



#1

**MAXIMUM STRENGTH  
FAT BURNER**

BOOSTS METABOLISM\*  
HELPS MANAGE APPETITE\*  
ENHANCES ENERGY  
& MENTAL ALERTNESS\*

THE MOST ADVANCED THERMOGENIC  
EVER DEVELOPED

DIETARY  
SUPPLEMENT

120  
CAPSULES

PATENT  
PENDING

THE  
ORIGINAL  
**BROWN FAT (BAT)**  
ACTIVATOR™

THERMO HEAT® and  
THERMO HEAT® NIGHTTIME  
are best used as part of a  
diet and exercise program.

ALSO AVAILABLE



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**theVitamin Shoppe®**  
every body matters™

**GNC**  
LIVE WELL



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The Innermost Part of Gold for Nutrition and Wellness

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This product is not intended to diagnose, treat, cure, or prevent any disease.

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# FEEL THE POWER OF PURE BEEF PROTEIN

**Raptor-HP** - an all new High-Performance "Super-Protein" designed to enhance physical performance, increase muscle growth and strength, and enhance recovery.

For centuries the number one protein source for athletes has been beef - red meat. Beef imparts almost mythical effects on building lean muscle tissue and muscle strength. However, the biggest negative with beef has always been the unwanted things that come along with it. Namely excessive calories, fat, and cholesterol. Even with all the baggage that conventional beef consumption brings, the world's most successful athletes still eat massive quantities of red meat day in and day out.

## **Raptor-HP Changes The Game.**

New Raptor-HP gives you all the good and incredible muscle-building and strength generating qualities of red meat and none of the bad.

## **Raptor HP is Made From Pure Beef/Red Meat Protein.**

Raptor-HP is a complete high-performance protein derived from all-natural beef raw material with no added hormones and is GMO free. No dairy, no soy - pure 100% premium beef protein.

The actual peptide component in Raptor-HP is greater than 97% protein. This is far higher than other proteins and yes more than whey isolate.

New and innovative protein technology have allowed us to isolate an ultra-high, extremely efficient (muscle-building) peptide profile from beef into a highly concentrated, high-performance "Super-Protein".

## **Raptor-HP is High-Pressure Hydrolyzed**

Raptor-HP is hydrolyzed using an innovative chemical and enzyme free

High-Pressure Hydrolyzation (HPH) technique.

This is a new technique that allows precision molecular weight peptides to be cleaved from the intact protein giving the ability to engineer specific peptide weights within the protein composition.

Molecular weights of these peptides are measured in Daltons (Da). Raptor HP's molecular weight profile 15% - 6,000 Da, 55% - 3,000 Da, and 30% - 500 Da and smaller. The smaller the molecular weight of the peptide the faster it's absorbed into muscle tissue.

## **This gives Raptor-HP a Tri-Phase Peptide (TPP) for engineered absorption dynamics (EAD).**

30% of the peptides are ultra-low molecular weight peptides and get absorbed extremely fast for immediate return to positive nitrogen balance and an immediate effect of protein synthesis for muscle repair right after training.



55% of the peptides have a 6X greater molecular weight for intermediate absorption dynamics. This supports the anabolic growth phase that occurs a couple of hours after training.

15% of the peptides have a 10X greater molecular weight and are slowly released for extended anabolic support and recovery several hours later.

### Raptor-HP - 3 Dimensional Protein

Raptor-HP is a 3-Dimensional protein giving you fast, intermediate, and extended protein absorption rates.

Your muscles get a rush of fast acting protein right when you drink Raptor-HP. Instant muscle repair after training.

You then get an intermediate flood of peptides to your muscles as you enter the anabolic growth phase after your workout.

Raptor-HP is not finished yet - finally you get extended anabolic effects as slow released peptides enter your muscles for prolonged enhanced recovery and growth.

### Raptor-HP is Enhanced with Creatine

Raptor-HP is also enhanced with creatine for the enormous research proven benefits creatine imparts. This creatine enhancement is synergistic with beef as red meat contains a high concentration of naturally occurring creatine. More so than any other food source.

Even with beef's naturally high creatine content, adding additional creatine brings each serving to the research proven dose quantities shown in clinical studies to build muscle and strength.

### The Muscle-Building Power of Beef

Raptor HP gives

athletes the muscle-building power of red meat plus engineered peptide technology without any of the bad aspects of red meat.

### Raptor-HP All The Good Without The Bad.

Tri-Phase absorption dynamics - fast, medium, and slow absorbing protein peptides.

Super low in fat. Virtually no cholesterol. Very low in calories.

### Raptor-HP Tastes Like a Dessert.

Raptor tastes better than any other protein available. It's rich and creamy with absolutely no indications of beef whatsoever. You get the power of red meat, pure beef, with the taste of a dark chocolate gourmet milkshake.

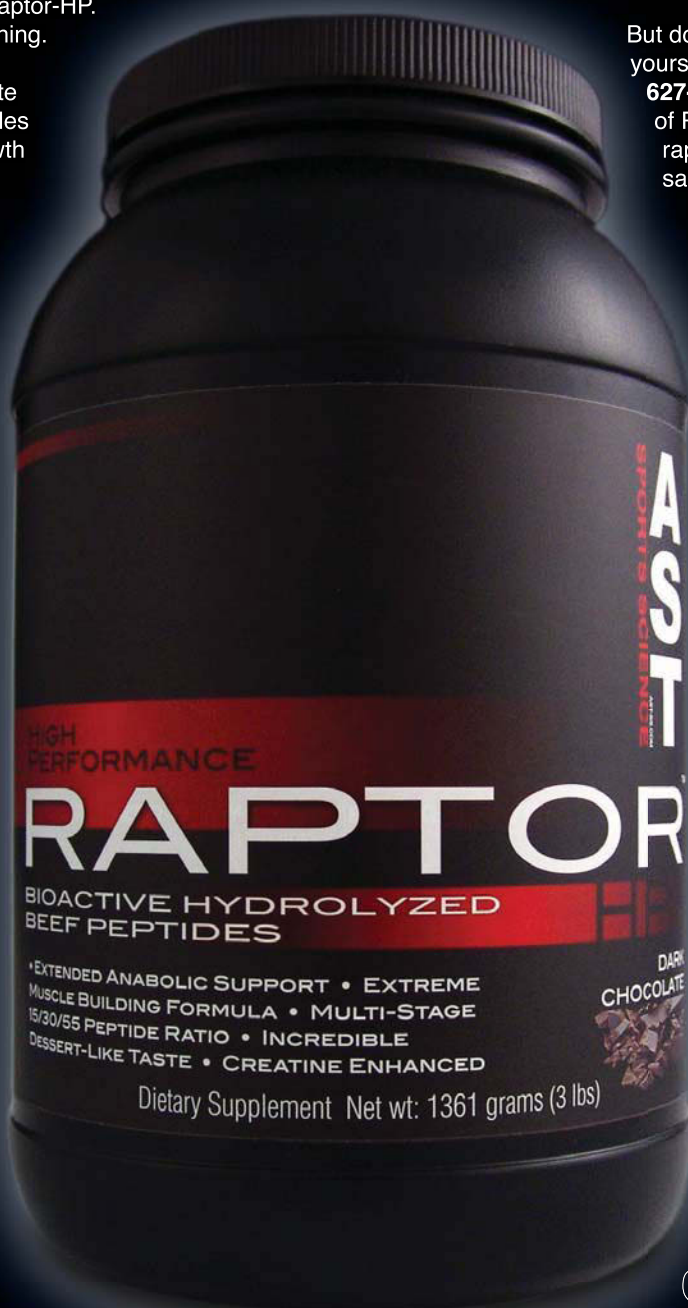
One scoop in 8 to 12 ounces of cold water or milk gives you a dessert-like shake with 24 grams of powerful, pure beef protein peptides.

The taste is incredible.

The texture and mouthfeel are creamy.

The muscle-building effects are fast and powerful.

But don't take my word for it. Try it for yourself absolutely free. Just call **1-800-627-2788** and ask for you free sample of Raptor-HP. Or go online to [www.raptorhp.com](http://www.raptorhp.com) and we'll get a free sample right out to you.



**Call For Your  
FREE Sample!  
1-800-627-2788**

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**STRONG**  
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## STACK THEM FOR THE BEST MUSCLEBUILDING RESULTS!



In clinical research, test subjects gained 18.7 lbs. of pure lean muscle in just 12 weeks when combining a core ingredient in Plasma Muscle™ with the core ingredient in Clear Muscle™, while the placebo group gained only 4.6 lbs.

## HOW IT WORKS

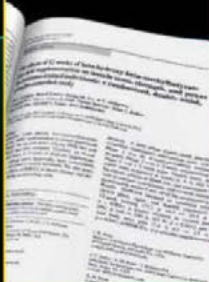


The groundbreaking compounds in Clear Muscle™, Phospha Muscle™ and Plasma Muscle™ all work on separate musclebuilding mechanisms of the mTOR enzyme – the body's primary regulator of muscle growth – to activate protein synthesis and put your body into a prime anabolic state.



Test subjects in clinical university research who supplemented with a core ingredient in Plasma Muscle™ and Clear Muscle™ added 211.6 lbs. to their combined bench press, squat and deadlift total in just 12 weeks.

**PUBLISHED IN  
PEER-REVIEWED  
JOURNALS**



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# BODYBUILDING'S MOST CLINICALLY VALIDATED AND **100%** EXCLUSIVE TRILOGY

**NEW**

## RESEARCH-BACKED FROM THE UNIVERSITY OF TAMPA

MuscleTech® researchers have engineered the world's most powerful musclebuilding trilogy. Unlike most musclebuilders, the Musclebuilding Trilogy provides core ingredients that are backed by gold-standard, third party-validated human clinical research from leading universities.

Clear Muscle™, Phospha Muscle™ and Plasma Muscle™ act on multiple musclebuilding pathways to trigger muscle growth, inhibit muscle breakdown, enhance strength and amplify muscle performance. It's the most complete, powerful, scientifically developed stack ever formulated.

- Take them separately or stack them for unprecedented gains in muscle size
- Delivers extreme anabolic & anti-catabolic effects
- The only musclebuilding pills with Mediator® PA, BetaTOR®, Peak ATP® and optiNOs®
- Clinically dosed based on research conducted at the University of Tampa
- Studies published in multiple peer-reviewed journals
- Protected by 6 patents and pending patents
- Fully disclosed formulas – no proprietary blends



### PHOSPHA MUSCLE™

Clinically dosed with Mediator® PA – the world's purest form of phosphatidic acid, which helped study subjects build 5.3 lbs. of lean muscle and boost 1-rep max leg press strength by 60% in 8 weeks.

### CLEAR MUSCLE™

Delivers patented BetaTOR® – an exclusive metabolite and free-acid derivative of leucine and HMB, which was shown in university research to help study subjects pack on 16.3 lbs. of lean muscle in 12 weeks.

### PLASMA MUSCLE™

Features an exclusive combination of patented Peak ATP® and optiNOs®. Peak ATP® helped study subjects gain 8.8 lbs. of lean muscle in 12 weeks while boosting strength by 147%, and the premium ingredients in optiNOs® helped subjects boost strength and crank out 4 times more reps than the control group.

[MUSCLETECH.COM](http://MUSCLETECH.COM)

**GNC**  
LIVE WELL

**B** BODYBUILDING.COM™

**V** the Vitamin Shoppe

**MS**

**100%**

**LONE STAR**  
LIVE & BUILD IT UP

**USA**  
MADE IN THE USA

Discover how it works at:  
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# RAISES THE BAR



You've seen great gains. But there comes a time when every passionate pusher of plates has to decide how far their training can take them. For those who can't accept good enough, who always want to be raising the bar, there's ON's Platinum Series. These uncompromising sports nutrition products represent our most advanced formulas for pre-workout preparation and round the clock recovery. Whether you're working at redefining your physique or retooling athletic performance, let ON's Platinum Series spot those efforts.

These statements have not been evaluated by the Food and Drug Administration.  
These products are not intended to diagnose, treat, cure or prevent any disease.



# KICKSTART YOUR WORKOUT ATTI2UDE



AVAILABLE EXCLUSIVELY AT:



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GNC  
LIVE WELL

netriton.com  
The Internet's Premier Nutrition Superstore

Vitacost  
We make the most out of healthy living

Lucky Vitamin  
The Vitamin's Best of Health and Wellness







4DNUSA.COM

**GRAY MAYNARD**

MMA FIGHTER - TEAM 4DN

Becoming the best athlete you can be is 10% physical and 100% mental. **THAT'S RIGHT; IT TAKES 110% EFFORT TO BECOME YOUR BEST. IF YOU DON'T HAVE ATTITUDE, YOUR MIND AND BODY AREN'T IN THE GAME.** 4DN **ATTITUDE** launches you into your workout with a blend of nutrients proven to **MAXIMIZE PERFORMANCE.** **ATTITUDE** includes but goes beyond the purest **CREATINE, CITRULLINE, AND BETA-ALANINE** essential to the best pre-workout supplements on the market. 4DN has enhanced the **NITRIC OXIDE** producing properties of this pre-workout by using Trimethylglycine Nitrate to deliver **700MG OF NITRATES.** **ELEVATP®** further boosts the availability of ATP to **FUEL MUSCLE CONTRACTION.** Additional augmentation of your pump and focus comes in the form of **CHOCAMINE, AGMATINE, AND PROANTHOCYANIDIN'S.** 4DN **ATTITUDE** is the most **COMPLETE PRE-WORKOUT SUPPLEMENT** on the market.

<b>5g</b> BCAAs	<b>6g</b> CITRULLINE MALATE	<b>3g</b> BETA ALANINE	<b>3g</b> CREATINE	<b>2g</b> BETAINES NITRATE (N03-TM)	PER 2 SCOOPS
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# +PLUS SERIES

## +PLUS SERIES CARNITINE



THE **THERMOGENIC,**  
PERFORMANCE BOOSTING  
CARNITINE

The L-carnitine blend includes superior forms of L-carnitine that have been shown to promote brain function, recovery from exercise, an increase in muscle carnitine levels and a healthy cardiovascular system. Also includes Gamma butyrobetaine to support your body's own L-Carnitine production and Grains of Paradise to support thermogenesis.<sup>†</sup>

## +PLUS SERIES CREATINE



THE NEW ERA OF  
**CREATINE,**  
NO BLOATING, 0 CARBS  
AND NO LOADING PHASE

The Bio-available Creatine Matrix provides a blend of Creatines that maximize water solubility, improve athletic performance, minimize bloat/gastric distress and support muscular endurance. It features most notably Micronized Creapure®, the leader in quality for Creatine due to its purity, safety and clinical studies. In its micronized form it is also more water soluble than standard Creatine Monohydrate.<sup>†</sup>

## +PLUS SERIES GLUTAMINE



THE RAPID ABSORBING,  
**IMMUNE SYSTEM**  
DEFENDING & GLUTAMINE  
RECOVERY FORMULA.

A blend of different forms of Glutamine and Glutamine Peptide plus Vitamin C to promote recovery and immune system support. Stress on the body can also result in inadequate amounts of Alanine, which is also included. It is considered to be one of the most important of the amino acids along with Glutamine for actual amino acid metabolism. The formula also features Sustamine®: a unique dipeptide ingredient that combines the amino acids L-Alanine and L-Glutamine to help your body rehydrate, replenish and recover. Sustamine's® dipeptide structure is quickly and easily absorbed by the body.<sup>†</sup>





**PROVEN INGREDIENTS**  
**RE-IMAGINED**



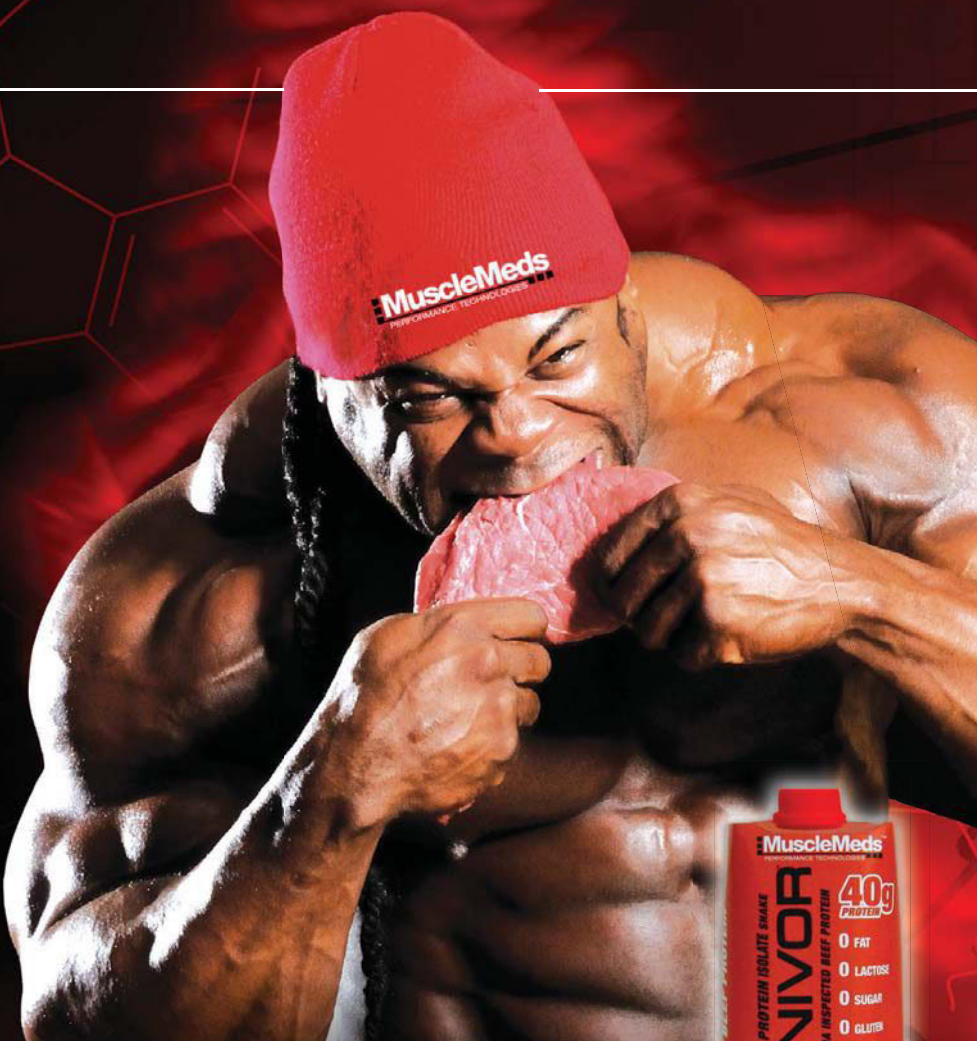
[WWW.BETANCOURTNUTRITION.COM](http://WWW.BETANCOURTNUTRITION.COM)

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## THE PREDATOR'S PROTEIN

# HARNESS THE MUSCLE BUILDING POWER OF PURE BEEF!

Beef has been a staple protein source for "men of power" since the days of the Roman Gladiators. Today's bodybuilders still favor beef to fuel their muscle growth. It's no wonder that CARNIVOR, the world's first beef protein isolate, is the most sought after protein supplement on the market. Even bodybuilding icon Kai Greene relies on CARNIVOR Beef Protein Isolate (BPI) as his muscle building protein of choice. Whether your goal is to build thick, dense muscle, increase your strength or sculpt a lean physique, MuscleMeds CARNIVOR Series has got you covered.



**NEW!**

**CARNIVOR RTD**

**40g**

PROTEIN

**0g**

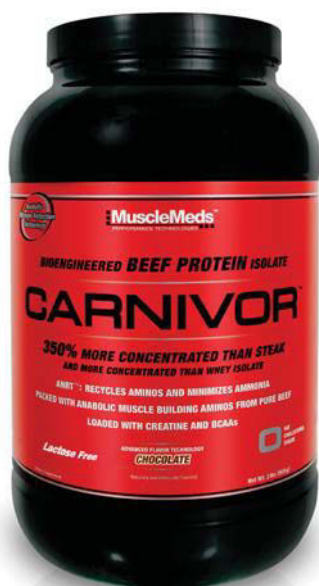
FAT

**0g**

CHOLESTEROL

**0g**

SUGAR



### EXPERIENCE THE POWER OF BEEF AT THE SPEED OF WHEY!

**23g**

PROTEIN

**0g**

FAT

**0**

CHOLESTEROL

**0g**

SUGAR

Everyone knows that beef builds muscle! Don't waste another workout—start fueling your body with a superior muscle building protein source. CARNIVOR is the world's first and #1 selling Beef Protein Isolate (BPI), delivering 23 grams of high quality pure beef protein in 10 delicious flavors. Thanks to advanced hydrolysis and isolation technologies, CARNIVOR is a USDA Inspected, 99% pure premium grade beef protein powder that's highly bioavailable and loaded with performance enhancing BCAAs and creatine. CARNIVOR'S exclusive BPI not only digests as fast as whey protein isolate, but is even more concentrated in muscle building amino acids. And with CARNIVOR,

you get all the power of 100% beef with 0 fat, 0 cholesterol, 0 sugar, 0 lactose and 0 gluten. CARNIVOR is loaded with creatine, BCAAs and BCKAs for even more muscle building power. Don't be fooled by the other poorly formulated beef protein imitators. BEEF UP your muscles and get the results your want with CARNIVOR!

*Available in 10 delicious flavors!*

- **HYDROLYZED FOR FAST ABSORPTION**
- **MORE CONCENTRATED THAN WHEY**
- **350% MORE CONCENTRATED THAN STEAK**
- **LOADED WITH CREATINE & BCAAs**



# THE WORLD'S LEADING BEEF PROTEINS!

## HIGH SPEED MASS – ALL BEEF GAINER!

**50g**  
PROTEIN

**720\***  
CALORIES

**0g**  
SUGAR

Welcome to a new era in mass building supplementation with CARNIVOR MASS, the fast, clean and highly anabolic lean mass gainer that provides your muscles with 50 grams of hydrolyzed Beef Protein Isolate (BPI) and 125 grams of high impact reactive carbs. CARNIVOR MASS combines a unique best-of-breed BPI with an exclusive iSpike™ technology to deliver a near-perfect insulin spike to support maximum muscle anabolism, glycogen replenishment and tissue regeneration to kick start your recovery, while helping minimize fat storage. With CARNIVOR MASS, you get the mass building support of beef at the speed of whey without the lactose, allergies and other problems that are frequently associated with the use of dairy products. And CARNIVOR MASS tastes amazing! If you're serious about your lean muscle gains, start supplementing with CARNIVOR MASS and watch yourself pack on size right before your eyes!

- **50g HYDROLYZED BEEF PROTEIN ISOLATE**
- **720 HIGHLY ANABOLIC CALORIES\***
- **125g HIGH IMPACT REACTIVE CARBS**
- **LOADED WITH CREATINE & BCAAs**
- **SUGAR FREE & LACTOSE FREE**
- **ONLY 1.5g FAT\***



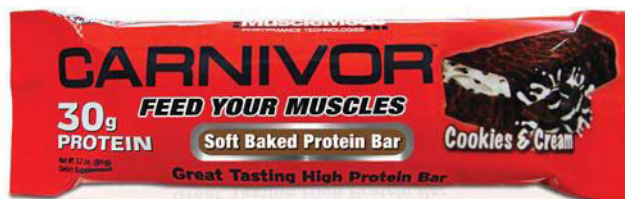
Available in delicious Chocolate Fudge, Vanilla Caramel, Strawberry, Chocolate Peanut Butter and Chocolate Macaroon!

## NEW DELICIOUS SOFT BAKED BARS & BROWNIES

### SOFT BAKED PROTEIN BARS

**30g**  
PROTEIN

CONVENIENT  
AMAZING  
HOMEMADE TASTE



When you bite into a CARNIVOR Soft Baked Protein Bar, you'll instantly understand why so many people are raving that it's the best tasting bar they've ever tried. CARNIVOR BARS are made using proprietary baking technology to create a bakery fresh texture that's different than traditional protein bars. CARNIVOR BARS are a decadent, high protein bar that achieves an amazing candy bar taste while packing 30 grams of protein per serving.

These mouthwatering bars have a soft baked cake-like center surrounded by a rich chocolate coating, infused with either a gooey peanut butter or a flavorful cookies and cream filling. Support your active lifestyle and feed your muscles with CARNIVOR Soft Baked Protein Bars!

Available in Chocolate Peanut Butter and Cookies & Cream!



### HIGH PROTEIN BROWNIE

**15g**  
PROTEIN

**190**  
CALORIES

CONVENIENT  
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# EDITOR'S LETTER

BY STEVE BLECHMAN, Publisher and Editor-in-Chief

## DALLAS MCCARVER: THE SHAPE OF THINGS TO COME?

Perfect timing is something that every bodybuilder strives for, and nobody knows this better than Dallas McCarver. In the last few years he has become a growing threat, putting on size while keeping his streamlined shape and classic V-taper. Dallas became the youngest man in the history of the NPC to win an overall National title when he was crowned the 2012 Super Heavyweight and Overall IFBB North American champion at just 21 years old. He has made an impact in the industry at a time when size, condition and proportion are increasingly being rewarded, drawing attention to physiques that flow effortlessly, without hitting a speed bump of a big gut.

I first heard about Dallas McCarver through Ed Connors, one of the founders of Gold's Gym. Dallas began weight training in high school to help with his strength and conditioning for the football team. He also played football at Bethel University, where he played fullback, and then pulling guard when he got so big. Dallas majored in psychology, so he was a man who could exercise his mind to build his muscle.

When I saw some photos of Dallas a few years ago, I called him and asked him what his plans were. He told me he was going into the 2012 IFBB North American Championships, being held on Labor Day weekend. I told Dallas that he was going to win the North Americans before he went in. Dallas told me I was crazy.

Weighing 241 pounds, Dallas won the North Americans and turned pro. One month later in September 2012, I brought Dallas to Muscular Development and signed him to a contract as a sponsored athlete. I saw great potential in Dallas: he was only 21, and at 6'1" he had a great frame and structure. He just needed to fill out. Amazingly, he had only been competing for a year. Learn about Dallas McCarver's evolution as a bodybuilder, and get his shoulder, back and abdominal-training routine in "The Ultimate V-Taper Workout" on page 102.

When I first spoke to Dallas, I told him it was important to keep his gifted V-taper, with wide shoulders and small waist.

I told him not to grow too quickly, that he should put on size all over, except his waistline. And I told him to beware of excessive growth hormone and insulin, which can cause acromegaly of the gut (swelling and growth of soft tissue and organs), abdominal hypertrophy and fat storage. I advised Dallas to keep his midsection small, and that more isn't always better as far as pharmaceuticals.

This past May 23, Dallas made his pro debut at the California Pro and won the show at 265 pounds. Dallas won convincingly, at over 20 pounds heavier than the North Americans. Winning his pro debut, Dallas displayed great condition, improved quads, back, legs (not easy for a tall bodybuilder) and overall thickness. Even with the added weight and improved condition, Dallas' waist was an inch smaller than it was when he won the North Americans. His plan now is enter the Mr. Olympia, for which he's already qualified. It doesn't matter how he places; Dallas is doing it for the experience, something that would benefit him more than taking time off from competing. His goals are to be the best bodybuilder he can possibly be; to come in with the same condition or better than the California Pro but a little fuller, especially in his upper body, and keep his V-taper.

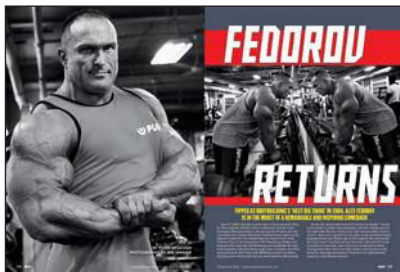
Is Dallas McCarver the shape of things to come, and the future of bodybuilding? I hope so; it would be good for the sport. Dallas is keeping the classic V-taper

physique alive—he's tall, has wide shoulders, flaring quads and a tiny waist. He certainly has a great future ahead of him. He's got youth on his side, and he could still carry another 30 pounds of muscle on top of his pro debut weight. If Dallas keeps going, it's hard to believe what he can look like by age 30. He is definitely capable of being Mr. Olympia one day. Most importantly, Dallas McCarver has a great mindset: the vision, passion, drive and hard work ethic that has built champions for generations.

Being the king of New York doesn't come easy. This year's New York Pro champion gives us the lowdown in "Juan Morel:







My 14 Most Productive Lifts! Get Growing With the 2015 New York Pro Champ” on page 112.

Maxx Charles has been blasted by critics ranging from exercise experts to anonymous teenage trolls for his rep style. The training certainly works for him, and it could pump your pectorals also, as he relates in “Pump Your Chest to the Maxx! With the Haitian Sensation, Maxx Charles” on page 124.

Tipped as bodybuilding’s “next big thing” in 2004, Alex Fedorov is in the midst a remarkable and inspiring comeback. See Peter McGough’s interview in “Fedorov Returns” on page 134.

The Men’s Physique Division represents an entirely new kind of bodybuilder. Are streamlined physiques where the sport is going, and should other bodybuilders feel threatened? Dan Solomon looks at the evolving scenario in “The Future of Bodybuilding?” on page 142.

Muscular Development is your number-one source for building muscle, and for the latest research and best science to enable you to train smart and effectively. Our team of physicians, industry experts and research scientists has these reports on improving performance this month:

- “Better Abs, Better Sex: a Scientific Approach” – Fat Attack, page 78
- “Capsaicin: Boosts Metabolic Rate and Testosterone While Dieting”

- Nutrition Performance, page 84
- “Omega-3 Update” – Supplement Performance, page 88
- “Increase Muscle Mass With Lactate!” – Muscle Growth Update, page 90
- “Split- vs. Full-Body Routines: Which Is Best for Maximal Muscle Growth?” – The M.A.X. Muscle Plan, page 92
- “Testosterone and Sexual Performance” – Testosterone, page 146
- “Rep Out for Strength” – Bodybuilding Science, page 150

The rest of the book is packed to the binder as usual— making MD your one-stop, most authoritative source for optimizing muscular development with the latest cutting-edge research on training, nutrition, fat loss, performance-enhancing drugs, muscle growth and bodybuilding science— and exclusive information from the industry experts, insiders and bodybuilding legends who make it all happen. See you next month!

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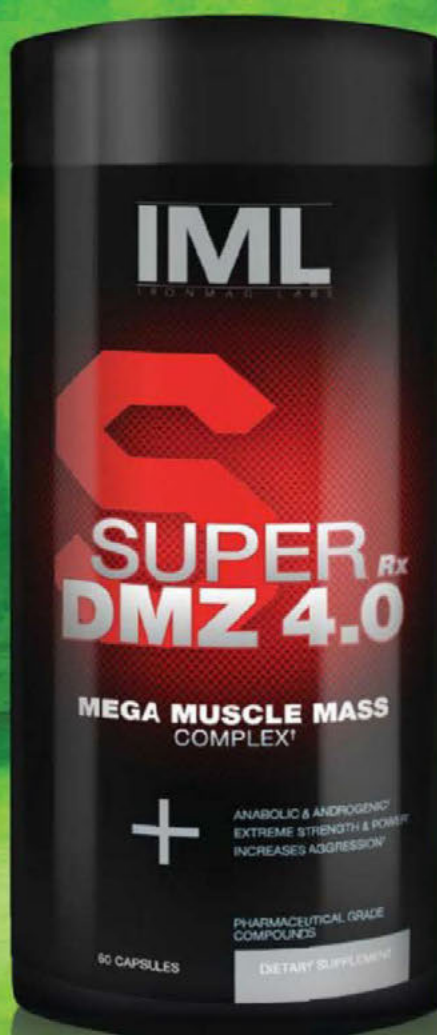
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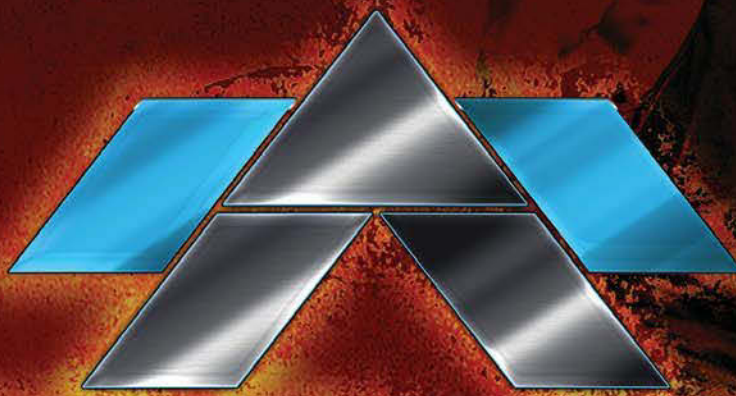


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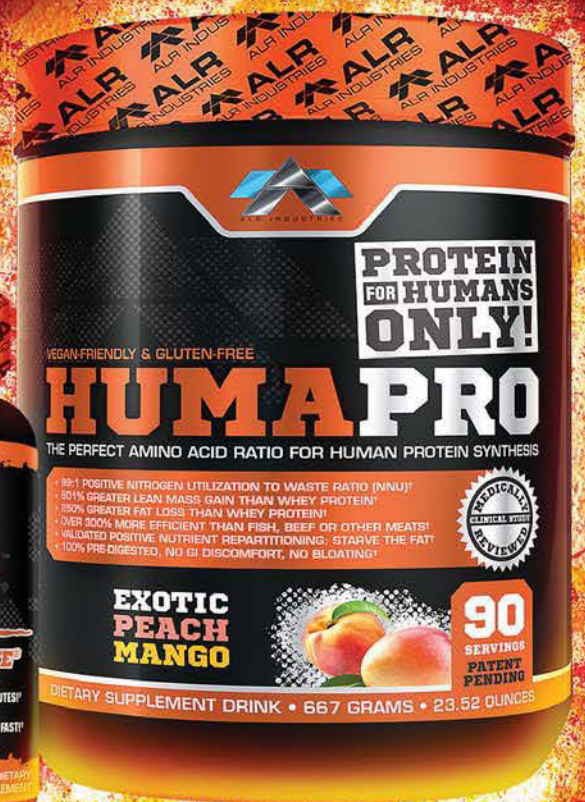
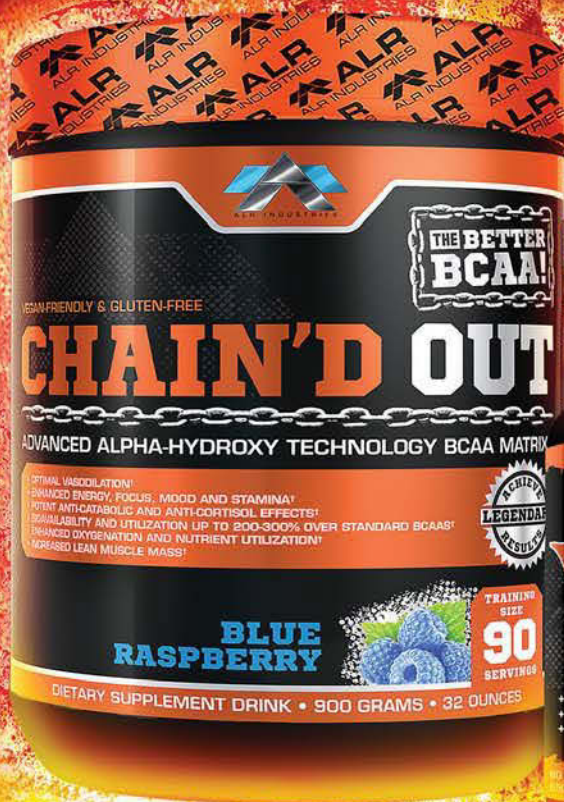
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# HOW I SEE IT!

WITH **SHAWN RAY, DORIAN YATES AND KEVIN LEVRONE**

Muscular Development is proud to bring you "How I See It," featuring three IFBB Hall of Fame bodybuilders, and legends of the industry that we are honored to have on Team MD. Between Shawn Ray and Kevin Levrone, they have a total of six runner-up finishes at the Mr. Olympia, and Dorian Yates won the Mr. Olympia title six consecutive times.

## DAD BODS: ARE FLABBY MEN SEXIER?

EARLIER THIS YEAR, THE MEDIA WAS REPORTING THE PHENOMENON ABOUT HOW WOMEN SUPPOSEDLY PREFERRED OUT-OF-SHAPE MEN TO THOSE WHO SPENT TIME AND EFFORT TO EXERCISE, EAT RIGHT AND LOOK GOOD. WOMEN WANTED MEN WITH THE SO-CALLED "DAD BOD" BECAUSE THEY FELT THESE MEN WOULDN'T MAKE THEM FEEL FAT, WOULD ALLOW THEM TO HAVE ALL THE ATTENTION AND BE "THE PRETTY ONE," AND WOULDN'T PRESSURE THEM TO EAT RIGHT OR EXERCISE. THEY ALSO CLAIMED THE SOFT AND MUSHY DAD BOD WAS PHYSICALLY MORE COMFORTABLE TO CUDDLE WITH. FIRST OFF, DO YOU THINK WOMEN REALLY FIND FLABBY MEN SEXIER AND IF SO, WHICH WOMEN ARE THESE? DOES THIS SPELL BAD NEWS FOR ALL THE SINGLE MEN WHO READ MD AND WORK HARD TO HAVE EXCEPTIONAL PHYSIQUES?

### SHAWN RAY

How do I address this without sounding arrogant, condescending or rude? Let me just tell it like it is. Any woman who's looking for the so-called "dad bod" should not venture into the world of bodybuilding and physique, just as I wouldn't personally be on the prowl for a fashion model at a pie-eating contest! To say that a woman would feel insecure about her man to the point that she would rather him be an out-of-shape, non-threatening physical specimen so as to not draw attention to himself, in essence making her invisible, is outrageous! This kind of toxic mix could only lead to one miserable place ... DIVORCE! Why would anyone place their self-worth on how their spouse looks and how much attention they get relative to him or herself? It's shallow on the surface, and can be devastating on all fronts if children are involved. It would be a never-ending cycle of arguments about who looks better and why "everyone is attracted to you, when I do all the work."

Amicable relationships should be about balance and equality. Couples in the fitness industry should complement each other and bring value to the relationship based on health and fitness. Insecurities are a main reason people use training to get a balance in their lives. They improve their bodies to boost their self-image, hoping it transfers into other aspects of their lives, namely better control of their relationships. When the opposite presents itself, I have only one word of advice: RUN!

Run away as fast as you can if your partner is not encouraging you to continue your fitness journey in your efforts

to fight the hands of time. Should your spouse try to hinder your progress out of fear of you looking better or attracting more attention than she gets, she is NO GOOD FOR YOU! She will make your life a living hell if she is counterproductive to your fitness endeavors. Jealousy, envy and insecurity are all adjectives that are toxic in nature, and carry over into every other aspect of an otherwise healthy relationship. The arguments will be endless, the need to be validated by comparison to rank strangers will be tiresome, and the idea that you should stop the fitness path you have chosen in exchange for doughnuts and desserts is counterproductive to your happiness. A relationship with a dynamic like this never has a happy ending!

If your girl wants you fat and out-of-shape so you don't rain on her parade, send her packing sooner rather than later, and save yourself the heartache of feeling guilty in your pursuit of fitness happiness. Let her go, so she can find the out-of-shape "dad bod" with love handles that she desires, and you will never have to explain why your abs are rock-hard all the time!

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WITH SHAWN RAY, DORIAN YATES AND KEVIN LEVRONE

## DORIAN YATES

First off, I don't know a whole lot about what women want, as I am not a woman. But before you even start to answer this question, stop for a moment and understand that just because the media reports that something is a new fad or a trend doesn't mean it actually is. In many cases, all it takes is an informal survey to come up with an alleged "trend" that they will run with and try to pass off as something happening on a large scale. They don't need evidence to come up with stories like these. Who is going to challenge it? Yahoo News or Channel 5 News said it, so it must be true!

I don't pay any attention to things like this because they don't affect me one way or another. My wife Gal likes my body, and that's good enough for me. But all you need to do is think about our human instincts. Human beings tend to be more attracted to attractive people, both in terms of their face and their body. Just about everyone would be with a very attractive person as their mate if they could. If they can't land what they really like for whatever reason, they will settle for the

best they can get. And it stands to reason that they could justify being with someone who isn't attractive as being their preference. I'm not trying to be shallow, as what's inside a person certainly matters just as much as the exterior. I'm only speaking in generalities.

As far as a man who is in shape, and I'm not talking about a bodybuilder with extreme size and definition, it does speak to his character. It says he respects himself and puts in the effort to take care of himself to exercise, eat right and strive to be fit and healthy rather than let his body decline with disuse and poor eating habits. A person who has no regard for their body doesn't have a lot of self-respect, and that's not attractive to anyone. I personally wouldn't want to be with an out-of-shape woman, not so much because I don't find that attractive, but because it says she doesn't respect herself enough to care for her body in any way. That should go for men as well. There is nothing sexy about a person who has no regard at all for their physical being.

Facebook: Dorian Yates



**"A PERSON WHO HAS NO REGARD FOR THEIR BODY DOESN'T HAVE A LOT OF SELF-RESPECT, AND THAT'S NOT ATTRACTIVE TO ANYONE."**



**"NO MAN REALLY WANTS TO LOOK LIKE THAT, AND NO WOMAN REALLY WANTS TO BE WITH A MAN LIKE THAT."**

## KEVIN LEVRONE

Women do not find a guy with this so-called "dad bod" attractive, in spite of what these dubious reports claim. They don't like skinny or fat men. I know from experience that what most find attractive is a man who is athletic and lean, muscular and not necessarily huge. For a while I was down to a soft 206 pounds, and women weren't looking at me. People in general ignored me. Now I'm up to 240 and lean. I have enough muscle that women are drawn to me, but not so much that they are often intimidated, as I found them to be when I used to carry 275 pounds back in the day.

Look at movie stars like Vin Diesel and The Rock. Women fantasize over these guys! They look powerful and confident, capable of protecting them against anything or anyone. On a primal level, that's what drives women's attraction to men. You can't change the instincts that humans developed over many thousands of generations of evolution in a few years. Men are attracted to women that have the signs of health and fertility—the hourglass shape with fairly large breasts, a small waist and substantial hips and butt. Women are attracted to men with the physical traits of power and virility: height, wide shoulders,

substantial muscle mass and low body fat.

A lean midsection has become the focal point many women gravitate toward in men. That's why the current fitness crazes are building firmer, bigger butts for women and six-pack abs for men. Have you seen any top-selling programs for getting the dad bod? You know, sit around and watch TV, eat chips and drink soda and beer? No, and you won't. No man really wants to look like that, and no woman really wants to be with a man like that. If they do, it speaks to their own insecurities and/or need for attention. Just as there are some controlling, insecure men who encourage their wives to get fat so no other man will ever look at them and they never have to worry about losing them, there are some women out there who would rather have an out-of-shape slob for the same reasons. But don't think for a minute that women really don't find men who are in great shape sexy. They absolutely do, just as they always have. ■

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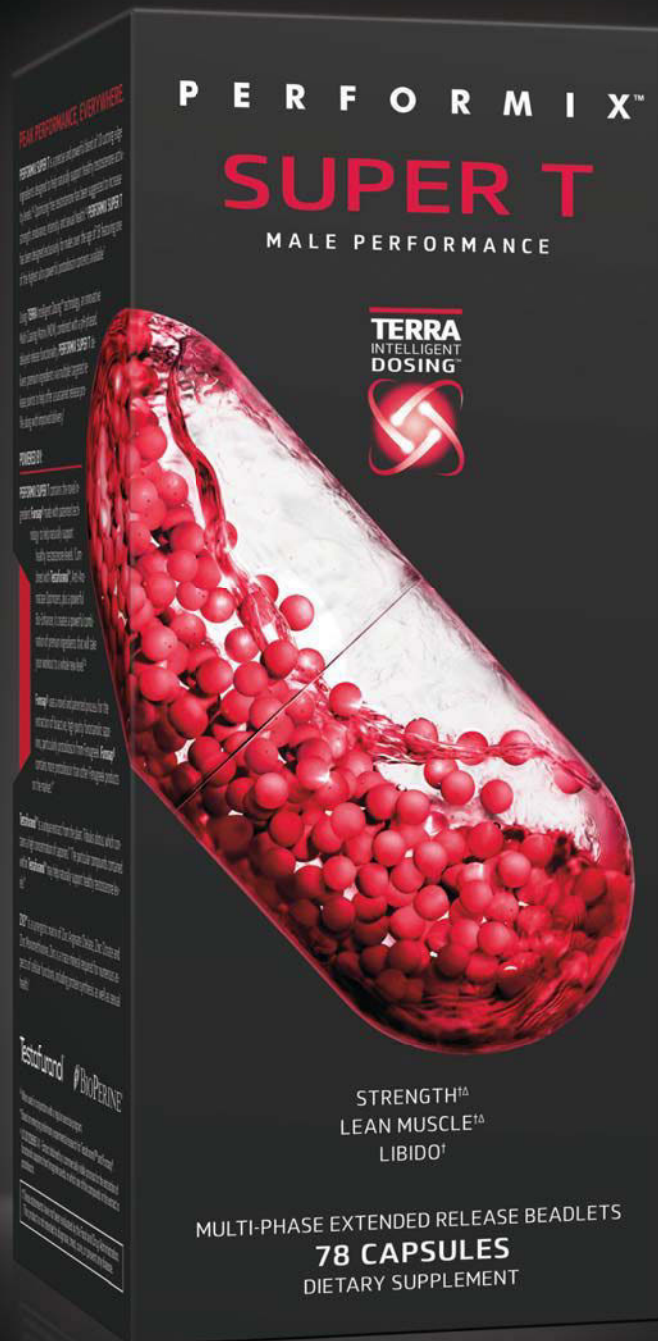
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**WHERE'S BOB? 2015**

**SEPTEMBER 17-20<sup>TH</sup>**

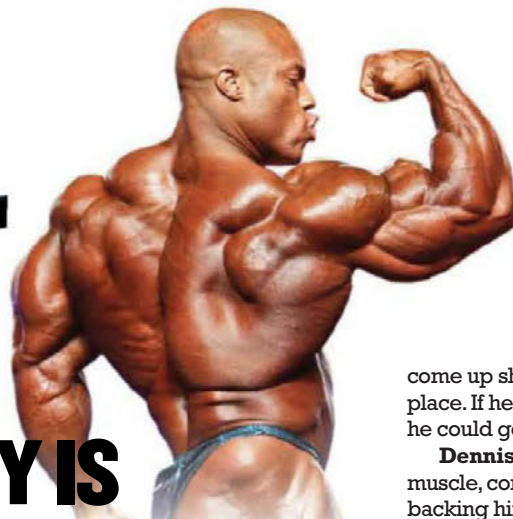
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# 5-PEAT

## CHASING HISTORY IS ALWAYS A GREAT MOTIVATOR



*The Phil Heath train continues to roll this month, as The Gift looks to collect his newest Sandow in the elusive "five-peat" attempt.*

*Five-peats are not common ... as a matter of fact, there have only been four other previous Mr. Olympia winners in 50 years who have accomplished this: Arnold (1970-1974), Haney (1984-1988), Yates (1992-1996) and Coleman (1998-2002). Heath will add his name to the list this year. There are five reasons why I believe this is a done deal:*

1. Heath has beaten every man that will be on the Olympia stage, numerous times.
  2. There haven't been any new threats to realize their potential, to date.
  3. Despite an off year for The Gift, he STILL managed to beat everyone else.
  4. An angry Phil is a more dangerous one. Even though he won, it's never rested well with Phil that he wasn't at his best on Olympia day.
  5. Chasing history is always a great motivator.
- Let's look at the contenders objectively, to see if there's a chance of an upset.

**Kai Greene.** The Predator has tried and tried and tried ... this decade's Jay Cutler to Ronnie Coleman. In my opinion, the Kai of six or seven years ago would have a better shot at dethroning the champ than the current version. Too big = second place ... again. Streamlined would be the key to matching up better ... AND you still need a little help from Phil, as a 100 percent Phil beats a 100 percent Kai.

**Shawn Rhoden.** Flexatrn has made great strides over the last few years, and matches up very well with Phil ... BUT ... he's lacking in two major places that will relegate him to third-place status again—arms and back. The two body parts he lacks just happen to be the champ's two biggest strengths. Unless Shawn manages to bring these parts up, it ain't happening.

**Dexter Jackson.** The only other Mr. Olympia standing onstage, the model of consistency, he's as solid as they come ... but solid isn't going to upset the champ. Even Dexter knows he can't beat Phil, but they said the same about beating Jay, and Dex has a Sandow on his mantel to show for it. But that was in 2008. Seven years later, whatever deal The Blade made with Father Time aside, "solid" means fourth or fifth.

**Big Ramy.** Here is the wild card. I've gone on record many times saying that "different" is what can beat the champ, as no one is going to be a better version of Phil ... than Phil. Big Ramy's got size, shape, proportion and plenty of muscle ... 40 pounds more than the champ. What he DOESN'T have is condition. Without the polish worthy of the title, Big Ramy will continue to

come up short and land in fourth to sixth place. If he manages to sacrifice enough, he could go as high as second.

**Dennis Wolf.** Big and impressive, lots of muscle, comes out strong with lots of fans backing him up. Problem is ... consistency. Sometimes he looks worthy, and sometimes he doesn't. Wolf doesn't have a résumé that includes being an immediate threat to Phil, and I don't expect that quality to suddenly appear now. I'd be more worried about slipping down a few spots than I would about moving up. The guys ahead of him will most likely stay ahead of him.

The competition this year is Phil versus Phil. Will we see a better version than last year? Will we see Phil's best combo ever? Clearly, last year showed us that bigger is not better. Heath is competing against destiny and legacy, both of which are formidable opponents. The drive for five is alive.

There's another battle going on, or rather a showdown. The 212 division has its own version of Mr. Olympia, and his name is Flex Lewis. "The war for four" is the theme this year, as the current champ shows no signs of slowing down. Winner of his last 10 shows, Flex has managed to bring his physique to a level of complete dominance. Ironically, last year's victory (much like Phil's) wasn't without drama. Flex also was not at his best, and was having stomach issues all weekend. Despite that, he still managed to collect his third title, albeit a bit closer to runner-up Eduardo Correa. Put it in the books, Flex will be at 100 percent this year and start the annual "Flex needs to move up to the open" talk. As amusing as I find that, I've always been of the mind that it's better to be the best in the world at what you do than to do "well." Call me crazy. ■

Bob Cicherillo is the IFBB Athlete Representative and one of bodybuilding's best-known personalities. He is an IFBB pro who placed first and overall as a super heavyweight in the USA Championships and first in the Masters Pro World. Bob is host of over 20 bodybuilding shows throughout the season, including the Mr. Olympia.



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# THE VOICE

FEATURING **DAN SOLOMON**



## ADDICTION, BROMANCE & OBSESSION AN UNDERDOG STORY

**O**n the surface, the bodybuilding community is known mostly for the muscle that fills the shirtsleeves of men named Schwarzenegger and Ferrigno. But if you look beyond the bulk, deep within the inner sanctum of this quirky subculture, there's another side of bodybuilding, a side I have followed closely during my years in the business. I've often referred to the bodybuilding world as an *entrepreneur's playground*. I've personally witnessed dreamers enter the industry, by the truckload, turning passion into profit; photographers, writers, contest-prep gurus, web designers, trainers, graphic artists, promoters ... the list is endless and the formula is hardly unique. A path that typically begins with blind ambition can eventually evolve into a full-blown career for those willing to put in the work. But make no mistake about it—not all success stories follow the same blueprint. Every so often, I'll stumble upon an achiever who breaks all the rules of conventional business, elevating to a level of success that few saw coming.

The story of Aaron Singerman, a 35-year-old married father of one, is about as unlikely as any you'll hear. In fact, his story nearly ended before it even started. In his mid-20s, Singerman battled drug addiction. As he sits across from me during breakfast at a neighborhood diner, he speaks openly about an appetite for heroin and OxyContin that nearly proved fatal. He tells me of his years living in a Houston ghetto without electricity, surviving on a diet of protein powder and peanut butter. "I saw friends die and people killed," Singerman recalls. "One day I finally had enough and made the decision to change. I've never looked back."

Like many of you reading this, Singerman's love affair with bodybuilding started when he was still in grade school. "When other kids took the bus home after school, I chose to get dropped off at the gym," he said. "It didn't take me long to realize I wouldn't be the next Mr. Olympia, so instead of making my idols Dorian Yates or Ronnie Coleman, I looked up to guys like Joe Weider."

Eventually, Singerman made his way into the competitive world of bodybuilding media, hosting a series of radio shows and chasing down industry gossip. "I was covering bodybuilding shows

around the world, traveling 100+ days a year," he said. "Dave Palumbo decided to make me editor-in-chief of his website."

After he and Palumbo went their separate ways (a story far too long for this column), Singerman found himself in search of a new path. A few years earlier, while in Columbus, he was introduced to PJ Braun, a prominent national-level bodybuilder. The pair hit it off, and a *bodybuilding bromance* was born. Singerman adds, "We've been best friends ever since."

In the fall of 2012, they teamed up to launch Blackstone Labs. The duo garnered momentum quickly, catering to the fierce demand for prohormone supplements, capitalizing on a category abandoned by most companies in recent years. "We always knew the days of prohormones were numbered," Singerman said. As he explains, "We prepared for them to be outlawed by creating other products that worked. We made products that we personally wanted to take, and that became the foundation of our brand."

Success came fast and the cash poured in, eventually giving way to Prime Nutrition, a second line of supplements geared to a more conventional customer. As we finish breakfast, the young CEO quietly and confidently shares that he has no plans of slowing down.

"One of my goals is to have two companies that are both considered among the top 10 supplement companies in the world," Singerman said.

The guy who once spent his days and nights living in government housing, void of electricity, suddenly finds himself hobnobbing with the South Florida elite, a card-carrying member of one of the area's most prestigious country clubs.

As for the drug habit that nearly killed him, he confesses that he now battles a new addiction. "I'm now obsessed with success, the same way I was once obsessed with drugs. I think anyone who wants to be extremely successful needs to have some level of obsession."

With nearly 40 full-time employees, Singerman no longer has time to look back—unless, of course, he's using a rearview mirror, like the one mounted above the windshield in his new Rolls-Royce. ■

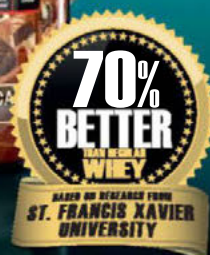
**"ANYONE WHO WANTS TO  
BE EXTREMELY SUCCESSFUL  
NEEDS TO HAVE SOME LEVEL  
OF OBSESSION."**

Dan Solomon is the Senior Features Editor at Muscular Development. For nearly 15 years, Dan has conducted many of the most prominent bodybuilding interviews of all time, including memorable visits with Arnold Schwarzenegger, Joe Weider and other icons of the sport. Creator of the popular "PBW Radio" program, Dan has served as moderator of the Olympia Press Conference and lead commentator at many of the world's biggest bodybuilding events. Follow Dan on Twitter @DanSolomon100 and tune in to PBW at [MuscularDevelopment.com/pbw](http://MuscularDevelopment.com/pbw).

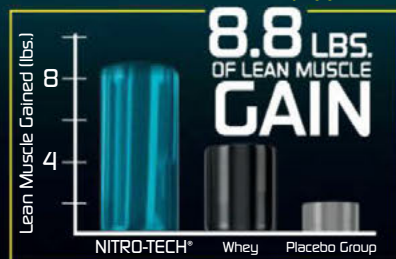


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WITH **PETER MCGOUGH**

# RANDOM MEMORIES

*Having been involved in bodybuilding for 46 years, I have met many people during my time in the sport and have a store of memories. This means I can bamboozle people who weren't around back then, so I can basically embroider a story any which way. That's as may be, but such is my longevity that I am often asked about figures from the past as well as present-day names. Recently, I had cause to revisit the memories published below.*

## NOW YOU DON'T SEE IT, NOW YOU DO!

I recently had a conversation with an old friend George Coates, a fellow Brit, former competitor and published author. George has lived in Southern California for nearly 50 years and when we talk, both our wives know they can start reading—and finish—*War and Peace* before we're done.

Anyway, George and I got to talking about how modern-day physiques fluctuate, even during contest day. Have you ever visited one of those Hall of Mirrors places where the glassware so distorts your image that you could be Lou Ferrigno one second and Rosie O'Donnell the next—a *paneful* experience?

Watching modern bodybuilding is a little like that: the physiques changing in front of your eyes, morphing from washboard Sammy to, "My abs were there five minutes ago" in as much time as it takes to say, "I coulda been a contender."

It used to be (Oh Gawd! I can hear the collective groan, Grandpa McGough's about to drag us on another trip down Memory Lane) that a guy would be in shape say, on Thursday for a Saturday show, and he wouldn't change much at all for several days: he'd be in shape for the contest and



for photo shoots in the days following. Now with all the, "Meet me at midnight, knock twice, spin round three times, hop onto one foot, close your eyes, chug this down and scream Aunt Nelly" 11th-hour ministrations that are now part and parcel of modern bodybuilding, physiques are like gas prices—continually changing.

Re this subject, one episode from the 2007 Mr. Olympia stands out in my mind. At the start of the pre-judging on Friday night, the reigning champ Jay Cutler, at 259 pounds, was as flat as a Dick "Guy walks into a rack" Cheney monologue. In contrast, Victor Martinez was full and seemed set to

cause an upset. And then, like some strange alchemist ballet, Jay seemed to fill up. The real eerie part being that it appeared he was siphoning off—whatever it is that flows in and out of muscle tissue—from Victor as the latter seemed to flatten at the same rate that Cutler grew. By the end of Friday and certainly by the Saturday night finals Cutler, now some eight pounds heavier, seemed to overpower the 250-pound Martinez. Normally it takes a human being nine months to produce an eight-pound increase—Cutler did it overnight. There now follows a pregnant pause while those in the know say Cutler won because of his affiliation to



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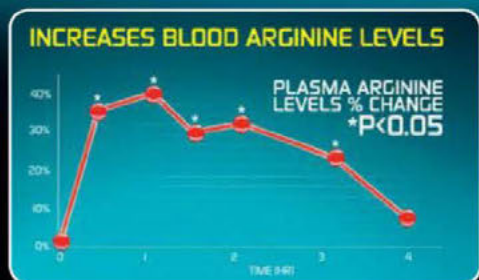
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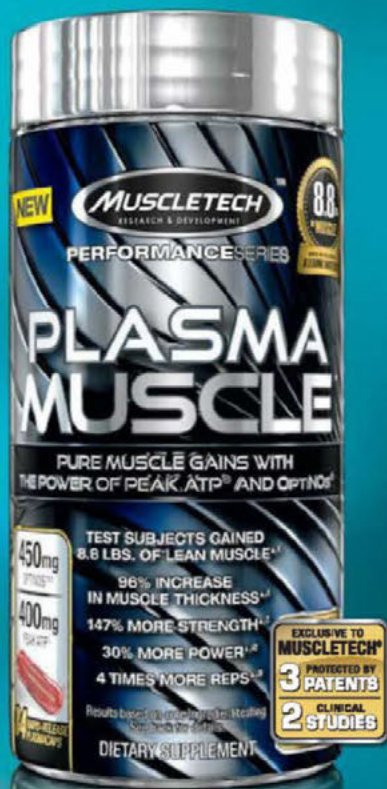


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# TRUE BRIT THE BODYBUILDING HISTORIAN

Weider Publications (co-promoter of the Olympia) and MuscleTech (main sponsor) ... a scenario that holds as much weight as a gnat's jockstrap.

I watched the 2007 Mr. Olympia in its entirety from a center vantage just behind the judges, and there is no doubt in my mind that a subpar Jay Cutler did just, just, enough to win. It was just a matter of going with the flow.

## REMEMBERING REG PARK

Among George's lifelong friends were two legends of the sport, Steve Reeves and Reg Park. We discussed both, but zoned in Reg, who shared our U.K. heritage.

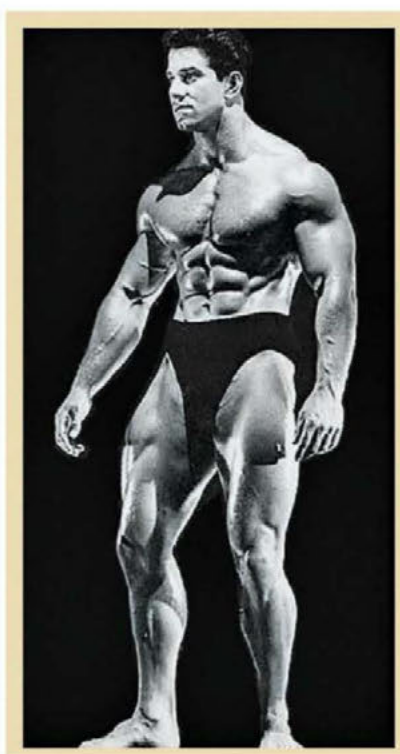
I first saw Reg Park in the flesh in 1969 when he toured England in "The Reg Park Show," and for bodybuilding fans it was like The Beatles had come to town. I went to the Manchester, Lancashire, rendition of the show and my first glimpse of him was of him arriving outside the theater. He alighted from a limo and, dressed in a dark suit, white shirt and dark tie with his lustrous black hair immaculately in place, he looked like a member of the Rat Pack—only it seemed like he had Sammy Davis Jr. and Joey Bishop under his jacket for shoulder pads. Later that night, looking every inch like Hercules, he posed to the theme from "The Legend of The Glass Mountain" and one 20-year-old bell-bottomed bodybuilding fan (moi) was hooked for life.

Reg lived a fruitful and full life, supported by his wife of 55 years, Mareon and the two children he was rightly very proud of, Jon Jon and Jeunesse. Although born in Leeds, Yorkshire, he emigrated to South Africa in the late '50s and spent the rest of his life there. In 1958 and 1965 he won the NABBA Pro Universe, which was—in those pre-Olympia days—the premier bodybuilding contest on the planet. He also appeared as Hercules in Italian movies and was the role model and inspiration for some guy called Arnold Schwarzenegger. In fact, everyone revered Reg, and I truly never heard hardly a bad word spoken about him.

Although I first saw Reg in person in 1969, my initial sight of him came in 1967, when in an issue of the British magazine, *Health and Strength*, I saw a

shot of him doing a front lat spread that was taken backstage at the 1965 NABBA Mr. Universe. I'd never seen such lat and shoulder development. He looked as wide as he was tall. And I was in awe that in a photo taken from the front, you could see so much of his lats. As George and I discussed the shot, we remarked that if the picture were recently taken, some would say it was Photoshopped. Of course, back then it never crossed my mind to think that any photo was not real and had been artificially enhanced. In those iPodless times, an Apple was daily sustenance for keeping the doctor away, a Mac was something you wore if it was raining and a hard drive was commuting around LA. Unlike today's, "I can't get out of bed without my iPhone, email, tablet, GPS system—I'm so connected, I have high-speed access up the wazoo" electronic age, the technology to play with and distort images with a few strokes of a keyboard was not available.

But we digress. In early 2007 came the news that Reg had terminal skin cancer. For eight months he battled his illness with the dignity and class he had demonstrated throughout his life, but eventually succumbed to its ravages on November 22, 2007. As Arnold Schwarzenegger said at Reg's memorial service, "Reg taught us how to live and at the end he taught us how to die." What a bodybuilder and what a man Reg Park was. ■



**"REG TAUGHT US HOW TO LIVE  
AND AT THE END HE TAUGHT US  
HOW TO DIE."  
—ARNOLD SCHWARZENEGGER**





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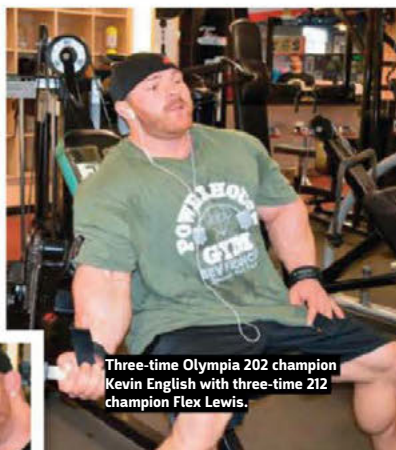


## SUPERSTARS AT THE MECCA AND IN THE BIG APPLE

Summer is no time for relaxing at the East Coast Mecca, when you have superstar guests like Phil Heath, Flex Lewis and Big Ramo. Along with all this action in the gym, we also brought the NPC back to New York City with the 2015 NPC Bev Francis Atlantic States Championships on June 6. With a crowd lined up down the block and Mr. Olympia guest-posing onstage, it was a day to remember!



Mr. O with Big Steve and the Boss Jim Manion.



Three-time Olympia 202 champion Kevin English with three-time 212 champion Flex Lewis.



Flex Lewis dropped in for a surprise visit and arm workout.



Four-time Mr. Olympia Phil Heath begins his title defense and shows his new size.



Big Ramo puts a 4x Bev's Gym hoodie to the test.

## UPCOMING CONTEST SCHEDULE

**OCTOBER 17, 2015:** NPC Greater NY Championships (Syracuse, NY)  
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**MR. OLYMPIA JAY CUTLER.**  
**GUEST POSER: JUAN MOREL**

**OCTOBER 24, 2015:** NPC New York State Grand Prix (Poughkeepsie, NY)  
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**NORTHEAST**

**SPECIAL GUEST: THREE-TIME**  
**OLYMPIA 212 CHAMP, FLEX LEWIS!**

**OCTOBER 31, 2015:** NPC Eastern USA Championships (Teaneck, NJ)  
**ONLINE ENTRY & TICKET SALES—**  
**BEVFRANCIS.COM/NPC**  
**NORTHEAST**

**SPECIAL GUEST POSER**  
**IFBB PRO DENNIS WOLF!**

**NOVEMBER 14, 2015:** NPC New England Championships (Boston, MA)  
**ONLINE ENTRY & TICKET SALES—**  
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**SPECIAL GUEST: FOUR-TIME**  
**MR. OLYMPIA JAY CUTLER!**



Keep up with all of the news at the East Coast Mecca and the NPC NORTHEAST by following us on Facebook ([facebook.com/bevsgym](https://www.facebook.com/bevsgym)) and check out [www.bevfrancis.com](http://www.bevfrancis.com) for the complete contest schedule, entry forms and ticket sales!





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Phil Heath,  
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Mr. Olympia 2014  
4-Time Mr. Olympia

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Jenna Renee Webb,  
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Jay Cutler,  
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Shawn Rhoden,  
IFBB Pro,  
3rd Place,  
Mr. Olympia 2014

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Dennis Wolf, IFBB Pro  
2014 Arnold Classic Champion



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It's been an exciting few months on the global bodybuilding scene, with two recent shows out of the country, the Arnold Classic Brasil and the Toronto Pro SuperShow. With smaller lineups at these bigger shows, we're witnessing either a changing of the guard or a year we'll look back on and wonder, Where was everybody?



## BIG RAMY

### Captures First Arnold Title

Mamdouh Elssbiay, better known as Big Ramy, has been turning heads for years now. It's just hard to take your eyes off of the behemoth in almost any lineup. The Arnold Classic Brasil was no exception. Now working with George Farah, we saw Elssbiay bring a much tighter package to the stage that proved too much for Cedric McMillan and Juan Morel to handle. That's not to say this was an easy win. This race was close. From where I sat in the press pit, everyone around me, including notables like Shawn Ray, Dexter Jackson and Shawn Rhoden, each picked a different man for the win. Now the dust has settled, Big Ramy has his first Arnold title and will focus on cracking that top five at the Olympia.

## CURRY REIGNS IN TORONTO

No, the lineups have not been stellar at this year's shows. We have had very few shows this year where the first callout had more than two guys in the hunt for the win. In New York, it was Victor Martinez and Juan Morel. In Orlando, it was Fouad Abiad and Michael Lockett. Finally in Toronto, you had a first callout that left you guessing and figuring who might come out on top. In the end, it was Brandon Curry. While we're all still waiting on him to go the distance and come in shredded, the flow and beauty of his physique was too much for second-place Johnnie O. Jackson. Not to be overlooked, Fred Smalls keeps refining his physique in search of a win.



## SPEAKING OF TORONTO...

The absolute highlight of my trip was a chance meeting with teenager Brayden (Bray) Hofman. I was on my way backstage when I saw Bray and his dad patiently waiting to meet wheelchair pro champ Harold Kelley. I asked them if they would like to go backstage, and got a very excited yes. Before I knew it, the entire lineup of wheelchair pros had Bray in the middle of them doing poses! They even signed a poster for him! He did get to meet Harold, and they exchanged email addresses, with the plan to get Bray onstage next year! Bray also got a few minutes with Kai Greene before he left. There is no doubt in my mind that great things lie in store for Bray. As his dad said to me in an email, "I call him 'tiny' ... because I know he will be huge one day."

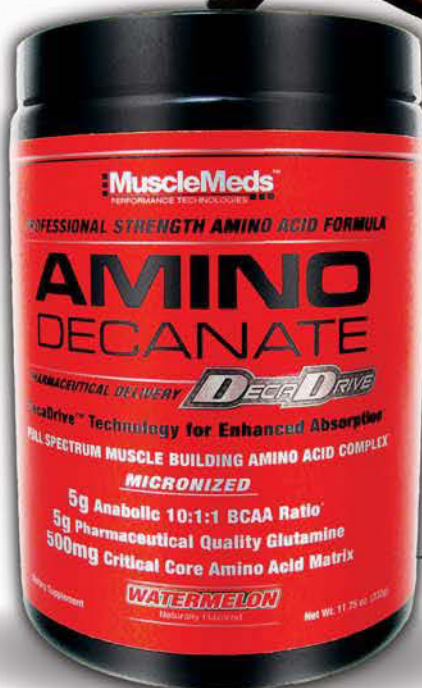
*That closes out this month, but certainly not the year! We still have shows all over the place. If we're coming to a city near you, drop me a line! Let me know where the good gyms to film are! Email me at [adina@musculardevelopment.com](mailto:adina@musculardevelopment.com).*



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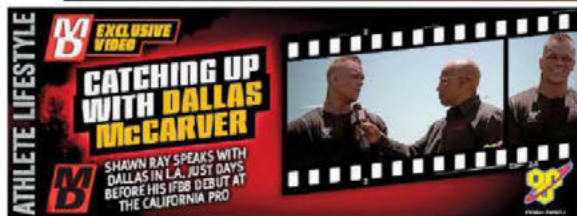
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BY ADINA ZANOLLI

Another great month has come and gone. We've had crews all over the map gathering content for the MD website. Here's a look at what's going on now, and a preview of things to come at musculardevelopment.com.



## DALLAS McCARVER

You've been asking for more videos, and we're happy to oblige. With the news that BSN athlete Dallas McCarver will be competing at the Olympia this year, we put our heads together and came up with a plan to follow him all the way to the stage in Las Vegas. Look for two videos coming your way each and every week as Dallas preps for the Olympia.

## JOIN THE DISCUSSION!

Do you like to argue? Keep up with bodybuilding news? Discuss what you love or hate about bodybuilding? Then come join the discussion at No Bull. More than half of my crew covering shows came directly from the No Bull Forums.

## IFBB PRO QUALIFIERS

If you like keeping up with who is earning all of the newest IFBB pro cards, your best place is the **No Bull Forums**. At each pro qualifier, we keep you updated live as the athletes take the stage, make first callout and go on to take a win. It's the next best thing to being there in person. We've got two big pro qualifiers in the not-so-distant future. If you want to keep up with the IFBB North Americans or the Teen, Collegiate and Masters Nationals, then the No Bull Forums is the place to be!



## ROAD TO THE OLYMPIA

Yes, it's that time again! We've got our video crew on the move following Dexter Jackson, Dennis Wolf, Branch Warren and others, as they get ready to take the stage in Vegas. We're concentrating more this time around on the lifestyle aspect of what it takes to prepare for a big show like the Olympia. We'll even get some of the world's top athletes to answer a few of your questions along the way. You can leave them in a message at the website or send me an email.

## RIP FERAS SAIED



IFBB Pro bodybuilder Feras Saied lost his life in a motorcycle accident in June, just a few short weeks after taking the stage in California. Stop by the forums and leave a condolence in his RIP thread started by forum member *muscleshock*. After placing second at the California Pro, many were excited to see what was next for Feras. Sadly, we'll never know.



## GUY CISTERMINO RE-SIGNS WITH TEAM MD

Fresh off a win at the New York Pro comes the news that Guy Cisternino re-signs with Muscular Development. Guy has a regular column he pens for the website. Watch for more written and video content from Guy as he makes his way to the 212 Olympia Showdown this year.

*Do you train at the best gym in America? I want to hear about some of the locally owned gyms around the states, so I can start sending film crews to visit them. Let me know what makes your gym a standout! Maybe yours will be the next gym featured in our popular In the Trenches series. Email me at [adina@musculardevelopment.com](mailto:adina@musculardevelopment.com).*



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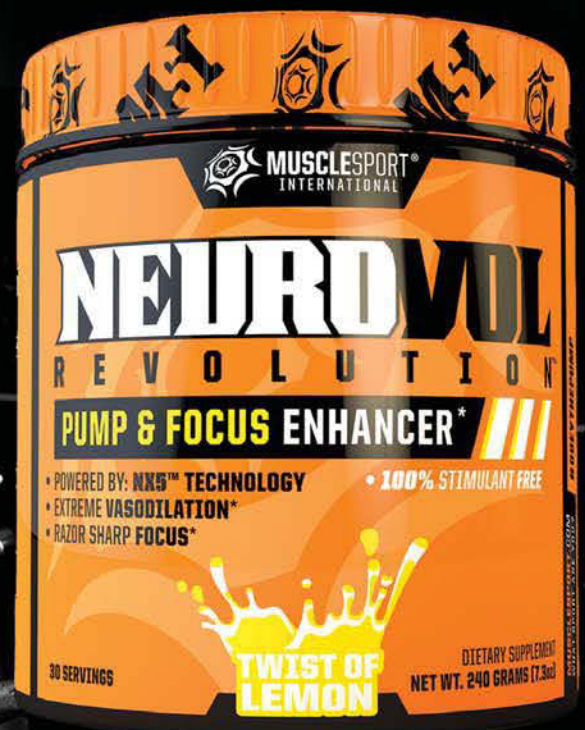
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## NO DIFFERENCE IN RECOVERY TIMES FOR EXPLOSIVE VERSUS HEAVY SQUATS

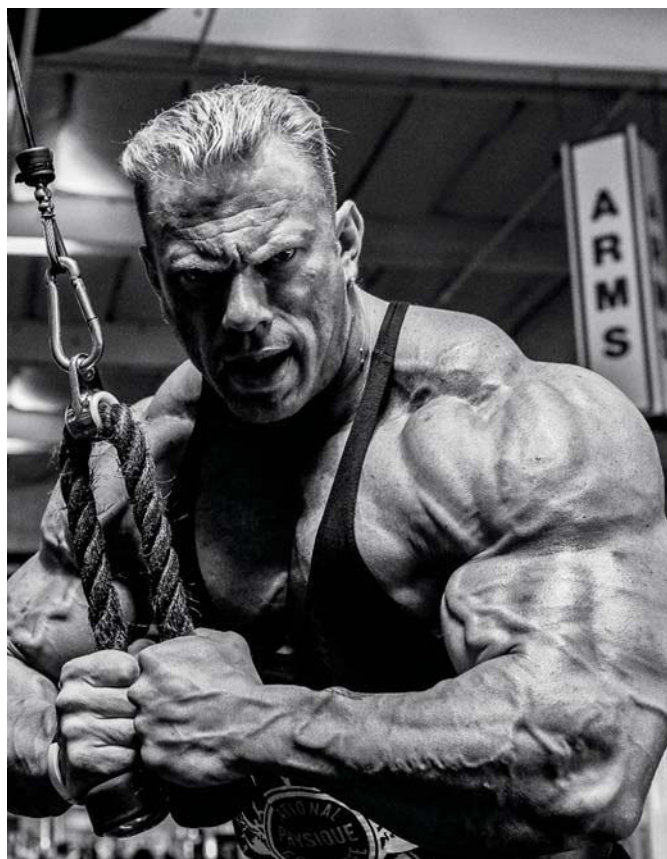
SOME POPULAR TRAINING PROGRAMS USE HIGH-REP, LOW-WEIGHT (E.G., 40 PERCENT OF MAXIMUM) EXERCISES PERFORMED EXPLOSIVELY, WHILE MORE TRADITIONAL PROGRAMS USE HEAVIER WEIGHTS (E.G., 80 PERCENT OF MAXIMUM) AND FEWER REPS. A study led by Eric Conchola and Brennan Thompson from Oklahoma State University found no difference in strength recovery between high-volume, explosive squats (five reps x 16 sets, 40 percent of maximum) versus high-intensity, slow-velocity squats (five reps x eight sets, 80 percent of maximum). There was a trend toward slower recovery in maximum power following the high-volume, explosive squats. (Journal Strength Conditioning Research, 29: 1285-1294, 2015)

## IS OCCLUSION TRAINING EFFECTIVE FOR ATHLETES?

OCCLUSION OR KAATSU TRAINING INVOLVES EXERCISING WITH RESTRICTED BLOOD FLOW TO THE WORKING MUSCLES. Decreasing muscle blood flow may trigger cell damage, inflammation, cell stress and anabolic hormone release. Muscles grow in response to physical and chemical stress, so it seems reasonable that restricting blood flow to muscles during training might promote hypertrophy—according to researchers from San Francisco State University and California State University, Fullerton. Muscles can increase in size using low levels of resistance, provided they're pushed to near failure. Until recently, most muscle physiologists believed 60 percent of maximum effort was the minimum resistance for building muscle. Kaatsu training, however, achieves increases in strength and muscle mass at lower levels. Blood flow restriction during low-intensity weight training triggers muscle hypertrophy because it creates severe metabolic stress that stimulates muscle protein synthesis and hypertrophy. To date, only three published studies on Kaatsu used well-trained athletes. All of the studies were positive, which suggests that occlusion training might be effective in athletes. (Strength and Conditioning Journal, 37: 48-53, 2015)

## TRAIN FREQUENTLY FOR GREATER HYPERTROPHY

WHOLE-BODY WORKOUTS PRACTICED THREE DAYS PER WEEK WERE SUPERIOR TO SPLIT WORKOUTS EMPHASIZING SPECIFIC MUSCLE GROUPS ONE TIME PER WEEK WHILE TRAINING THREE TIMES PER WEEK—ACCORDING TO A STUDY LED BY BRAD SCHOENFELD FROM CUNY LEHMAN COLLEGE IN NEW YORK. The idea behind split routines is that they allow athletes to train specific muscle groups more intensely, while performing the same training volume. Some bodybuilders believe they may promote muscle growth, enhance neuromuscular performance and prevent overtraining. This study showed that hitting muscle groups more frequently might produce more hypertrophy. The study used college students who were relatively untrained, so it is difficult to determine if the results apply to elite bodybuilders. (Journal Strength Conditioning Research, published online April 30, 2015)



## Higher Weight Training Volume Causes Greater Post-exercise Drop in Blood Pressure

WEIGHT TRAINING AND AEROBICS TRIGGER TEMPORARY DECREASES IN RESTING BLOOD PRESSURE AFTER EXERCISE, A PHENOMENON CALLED POST-EXERCISE HYPOTENSION. While the possible health benefits of post-exercise hypotension are not known, some scientists have speculated that it may contribute to the effects of exercise in lowering resting blood pressure. Roberto Simão from Federal University of Rio de Janeiro in Brazil, and colleagues, found that weight-training programs involving five sets of eight different exercises were superior to routines using three sets or one set for reducing blood pressure after exercise. While these findings are interesting, the long-term consequences or health benefits of post-exercise decreases in resting blood pressure are unknown. (Journal Strength Conditioning Research, 29: 1556-1563, 2015)





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A landmark study by Benjamin Lee and Stuart McGill showed that isometric exercises for the core resulted in greater core stiffness than performing whole-body, dynamic exercises that activated core muscles. Isometric core exercises include planks, bird dogs, side-bridges, torsional buttress, pallof presses, stir-the-pot, carry exercises, inverted rows and cable wood chops. Dynamic core exercises included curl-ups, Supermans, side curl-ups, twisting curl-ups, advanced curl-ups, back extensions, Russian barbell twists, curl-up twitches, Superman twitches, lateral medicine ball throws and rotational medicine ball throws. The results of this study cast doubts on traditional core-training methods. This is an extremely important study that might change the way we train for sport. (Journal Strength Conditioning Research, 29: 1515-1526, 2015)



## HIIT Training for Obese Men

**HIGH-INTENSITY INTERVAL TRAINING (HIIT) CAN BUILD FITNESS QUICKLY.** Studies of HIIT on stationary bikes found fitness gains in two weeks that normally took six months. The risks, benefits and ideal program design for obese people are less clear. Abbie Smith-Ryan and co-workers from the University of North Carolina at Chapel Hill found no difference in HIIT interval programs involving one or two minutes of exercise with one or two minutes rest. Test subjects practiced HIIT for three weeks. This was a small study involving 25 subjects divided into three groups. However, trends suggest that HIIT might be an effective training method for overweight and obese people. (Physician and Sports Medicine, 43 (2): 107-113, 2015)

## Interval Training and Weight Training Builds Strength and Endurance

**HIGH-INTENSITY INTERVAL TRAINING (HIIT) INVOLVES REPETITIONS OF SHORT BOUTS OF HIGH-INTENSITY EXERCISE FOLLOWED BY REST.** Endurance training interferes with strength training because it triggers different biochemical pathways leading to improvements in either strength or endurance. HIIT is extremely intense and might not interfere with strength gains. British researchers led by Jamie Pugh from Loughborough University in the United Kingdom found that combining resistance exercise with HIIT activated the mTOR pathway and suppressed myostatin, which results in accelerated protein synthesis. Combining HIIT and weight training in a single workout is a good way to build strength and endurance simultaneously. (Physiological Reports, 3(4): E12364, 2015)

## HIGHER STEP HEIGHT TRIGGERS GREATER BLOOD LACTATE CONCENTRATIONS

**HIGH BLOOD LACTATE LEVELS ARE LINKED TO HIGH-INTENSITY EXERCISE.** They reflect the types of motor units recruited (i.e., slow-twitch versus fast-twitch) and blood lactate clearance capacity. A study by Brian Nguyen and Trevor Gillum found that performing a one-minute step test on a 40-centimeter high step resulted in greater blood lactate concentration than using a 20-centimeter step. The higher step required greater power and the recruitment of more powerful motor units, which resulted in greater blood lactate concentrations. (Journal Strength Conditioning Research, 29: 1578-1583, 2015)



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## 'BEIGE' FAT LEVELS LINKED TO OBESITY

**METABOLISM DEPENDS ON COUPLED REACTIONS WHERE ENERGY RELEASED FROM ONE REACTION (E.G., BREAKING DOWN FOOD) IS CAPTURED IN OTHER REACTIONS (E.G., FORMATION OF ATP).** The ATP fuels other biological processes such as muscle contraction and electrical impulse conduction. A certain amount of energy in the body is lost as heat. Brown fat contains enzymes that cause energy losses as heat rather than storing it as fat or ATP. This process is called uncoupling, and is important for weight control. Most fat in the body is highly efficient at storing energy. However, excess fat is destructive because it causes inflammation and disease. One way that the body deals with excess fat is another tissue called beige fat, which can store fat energy but also dissipates energy as heat. Beige fat helps the body regulate temperature during colder times of the year and also helps regulate body fat levels. This new information has resulted in some people sitting in refrigerated chambers to help them lose weight, which is not a practical solution to our obesity problem. Poor beige fat metabolism may be an important factor in obesity. (Endocrine News, June 2015)



## EXERCISE BETTER THAN DIETING FOR IMPROVING METABOLIC HEALTH

**MOST STUDIES SHOW THAT EFFECTIVE WEIGHT LOSS REQUIRES CUTTING CALORIES AS WELL AS EXERCISING MORE.** However, calorie cutting alone does little to improve metabolic health. Researchers from Changi General Hospital in Singapore compared weight loss and metabolic health in people attempting to lose weight through diet or exercise alone during a 24-week weight-loss study. Patients in both groups lost nearly eight pounds, but markers of inflammation and blood sugar regulation improved more in the exercise group. Exercise is the most important way of improving metabolic health. Trying to lose weight through caloric restriction alone is counterproductive for long-term health, appearance and longevity. (International Journal Sports Nutrition Exercise Metabolism, Published Online Mway 22, 2015)

## DHEA Fights Fat

**DEHYDROEPIANDROSTERONE (DHEA) IS A STEROID HORMONE SECRETED BY THE ADRENAL GLANDS.** It is metabolized to androstenedione and testosterone, and is a popular supplement with aging adults and some athletes. A review of literature by Japanese researchers concluded that DHEA plays a significant role in controlling body composition. It activates AMPK and PGC-1 alpha, both of which improve metabolic health by increasing cell mitochondria (powerhouses of the cell), increasing fat burning, enhancing blood vessel formation and preventing muscle atrophy. PGC-1 alpha increases energy expenditure by activating brown fat—a tissue that releases energy as heat rather than storing it as fat. DHEA is also critical in blood sugar regulation. However, we don't have much concrete evidence that DHEA supplements are beneficial. (Biochemical and Biophysical Research Communications, 463: 42-47, 2015)



## HOT TUB THERAPY PROTECTS AGAINST INSULIN RESISTANCE

**SITTING IN A HOT TUB AFTER A MONSTER WORKOUT IS ONE OF LIFE'S GREAT PLEASURES.** Pain from sore muscles and joints seems to melt away. A review of literature by scientists from the Federal University of Rio Grande do Sul in Brazil found that heat therapy from a sauna or hot tub could help fight metabolic and cardiovascular disease. Heat therapy reduces fasting blood sugar, glycated hemoglobin (a measure of long-term blood sugar control) and body fat. It also increases nitric oxide secretion, which is an important chemical regulating blood flow. Heat therapy increases heat shock protein 70, which improves insulin sensitivity, prevents fat accumulation and suppresses inflammation. Sitting in a hot tub has measurable beneficial effects on health. (Current Opinion Clinical Nutrition Metabolic Care, 18: 374-380, 2015)



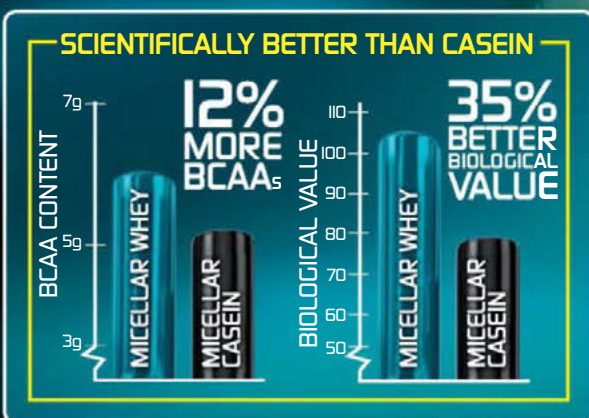
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## MD FAT LOSS CUTTING-EDGE RESEARCH



### BODY MASS INDEX: Its Use and Disuse

**BODY MASS INDEX (BMI) IS THE MOST COMMON METHOD FOR QUANTIFYING BODY COMPOSITION.**

It is defined as weight in kilograms divided by height in meters squared ( $Wt/h^2$ ) and is a measure of the proportion of weight to height. A BMI between 18.5 and 24.9 is classified as desirable; 25 to 29.9 is overweight; and 30 and over is obese. It is widely used as a measure of fatness and as a risk factor for diseases such as coronary artery disease and diabetes. Unfortunately, BMI is a poor measure of the percent fat and a poor predictor of the risk of disease and premature death. For example, longevity is higher in people with "overweight" BMI compared to "ideal" BMI. A review of literature by Frank Ntallal from the University of Minnesota concluded that people of Western European extraction are heavier, taller and more likely to be overweight than people in other parts of the world. However, they are also healthier and live longer than any other period in history. He questioned the use of BMI as the cornerstone for defining the obesity epidemic. (Nutrition Today, 50: 117-128, 2015)

### Are Commercial Weight-Loss Programs Worth The Money?

**WEIGHT WATCHERS, NUTRISYSTEMS AND JENNY CRAIG ARE THE PRINCIPAL COMMERCIAL WEIGHT-LOSS COMPANIES.** Monthly costs are \$43, \$570 and \$280, respectively. Weight-loss programs such as HMR and Optifast cost even more. Are they worth the money? A meta-analysis of 45 studies comparing the effectiveness of commercial weight-loss programs after 12 months showed that weight loss was approximately 4.9 percent of bodyweight for Jenny Craig, 2.6 percent for Weight Watchers and 3.8 percent for Nutrisystems. Optifast, a very low-calorie program, achieved a four percent weight loss at three months. The Atkins diet achieved one to 2.9 percent, depending upon the study. Given the cost, the effectiveness of these programs is extremely limited. (Annals Internal Medicine, 162: 501-512, 2015)

### THE FDA-APPROVED 'Double Chin' Drug

**THE U.S. FOOD AND DRUG ADMINISTRATION (FDA) APPROVED A DRUG CALLED KYBELLA FOR REDUCING CHIN FAT.** The drug is injected into fat depots under the chin, which helps metabolize the fat and get rid of it. The drug destroys cell membranes surrounding the fat and releases the fatty content into the blood, where it is metabolized normally. While any licensed physician can perform the procedure, it is probably best to see a plastic surgeon or dermatologist for best results. Treatment has few side effects other than temporary inflammation at the injection site. Recovery should be faster than with liposuction. The drug is only approved for use in the chin area, but invariably it will be used in other areas. Kybella and liposuction should not be used as substitutions for good diet and exercise. (Journal American Medical Association, 313: 2115, 2015)



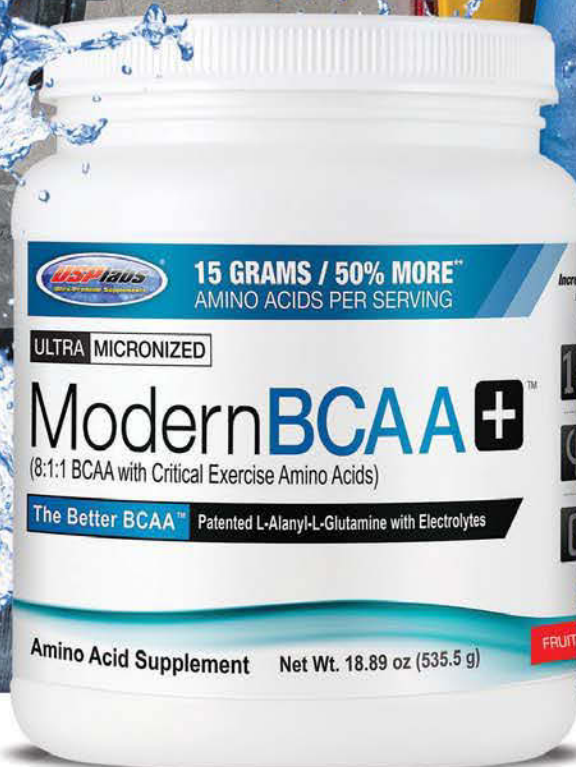
### Energy Expenditure Slows During Extreme Caloric Restriction

**NINETY-FIVE PERCENT OF PEOPLE WHO LOSE WEIGHT GAIN IT BACK AGAIN WITHIN ONE YEAR.** One reason is that extreme caloric restriction slows metabolism and reduces caloric expenditure. Researchers from the University of Chile found that overweight women on calorie-restricted diets (20 calories per kilogram of bodyweight per day) reduced resting energy expenditure by 168 calories per day (10.6%). Resting energy expenditure was higher in women with more muscle mass. The study showed that the body adapts to caloric restriction by reducing energy expenditure, which makes it extremely difficult to maintain lost weight. (Nutricion Hospitalaria, 31:2428-2436, 2015)



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## SHOULD YOU EAT EGGS?

**CLASSIC SCIENTIFIC STUDIES, SUCH AS THE FRAMINGHAM AND SEVEN COUNTRIES STUDIES, SHOWED THAT ELEVATED BLOOD CHOLESTEROL WAS LINKED TO HEART ATTACK AND STROKE.** Eggs are unusually high in cholesterol, so they were blamed for a good portion of the heart disease in America. Frank Sacks from Harvard University said that saturated fat in foods was more important than cholesterol for boosting blood cholesterol and that eggs were unfairly blamed for the high rate of heart disease in America. While eggs are experiencing a nutritional renaissance, other studies show that eggs are not a risk-free food. People with diabetes who ate one egg a day increased their risk of heart disease by 44 percent compared to people who only ate one egg per week. Egg eaters are also more likely to get prostate cancer. Most mainstream nutritionists recommend that people follow healthy dietary patterns that include increased consumption of fruits, vegetables, whole grains, low-fat dairy, seafood, beans and nuts. People should also consume alcohol moderately, reduce intake of red and processed meats, and reduce consumption of high sugar foods. Eggs can be part of a healthy diet. (Nutrition Action Health Letter, June 2015)



## Sodium Bicarbonate Improves Interval Training Performance

**SODIUM BICARBONATE IMPROVES PERFORMANCE DURING HIGH-INTENSITY INTERMITTENT EXERCISE— ACCORDING TO A STUDY LED BY PETER KRUSTRUP FROM THE UNIVERSITY OF COPENHAGEN IN DENMARK.** Test subjects performed an interval training workout with and without sodium bicarbonate supplements. Sodium bicarbonate increased exercise performance, elevated blood lactate and bicarbonate, and lowered their perception of effort. Sodium bicarbonate supplements increase bicarbonate levels in blood, which is an important blood buffer. Bicarbonate draws lactate from muscle to blood, which helps fight fatigue. Most studies find that sodium bicarbonate supplements cause severe side effects such as nausea, vomiting, diarrhea and abdominal cramping. Only about 50 percent of people can tolerate this treatment. However, many recent studies have shown that intermittent high-intensity exercise produces rapid improvements in fitness. Athletes who can tolerate bicarbonate ingestion might benefit even more from high-intensity workouts. (Journal International Society Sports Nutrition, published online June 4, 2015)

## Protein-Carbohydrate Drink Consumption Promotes Recovery

**INTENSE GROUP TRAINING IS COMMON IN SPORTS SUCH AS FOOTBALL, WRESTLING, WEIGHTLIFTING, TRACK AND FIELD, AND CROSS-COUNTRY.**

Typically, these camps involve a week of repeated high-intensity workouts that often leave athletes overtrained or injured. Researchers from the University of Copenhagen in Denmark found that consuming a protein-carbohydrate supplement before and after each workout resulted in improved performance with less evidence of muscle damage compared to athletes fed carbohydrate drinks. The researchers studied elite athletes participating in a one-week training camp. (International Journal Sports Nutrition and Exercise Metabolism, 25:97-109, 2015)



## ATHLETES SHOULD Pay Close Attention to Protein Intake

**PROTEIN IS A CRITICAL DIETARY COMPONENT THAT CAN PAY BIG DIVIDENDS TO BODYBUILDERS IF MANAGED CORRECTLY IN THE DIET.** Researchers from the University of New Mexico led by Kurt Escobar summarized the importance of protein in the active athlete's diet. Bodybuilders should consume close to 1.5 grams of protein per kilogram bodyweight per day. Consuming protein shortly before or after workouts enhances muscle protein synthesis. Co-ingesting carbohydrates with protein increases muscle protein synthesis and provides fuel for glycogen re-synthesis and skeletal muscle and the liver. Consuming 25-gram doses of protein throughout the day stimulates a more consistent increase in muscle protein synthesis. Elevated protein intake works best when combined with intense weight training. Finally, increased protein intake helps bodybuilders maintain muscle mass while trying to lose body fat. (Strength and Conditioning Journal, 37: 23-34, 2015)



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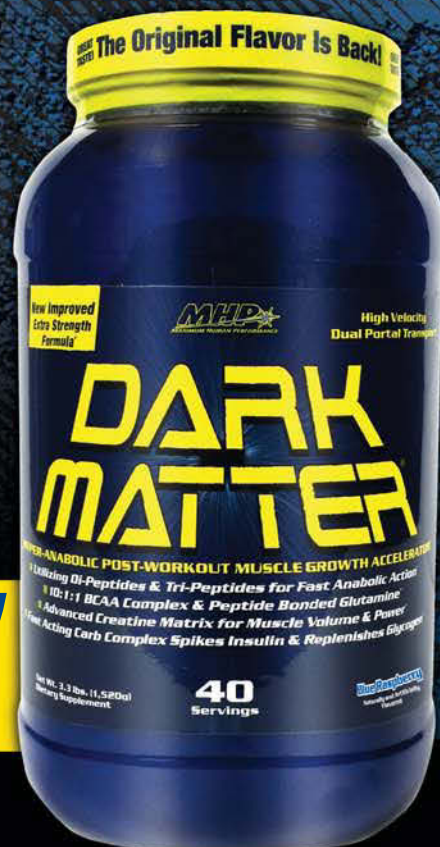
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# M SUPPLEMENT CUTTING-EDGE RESEARCH

## High Iron Levels in Brain Linked to Alzheimer's Disease

**IRON IS AN ESSENTIAL COMPONENT OF HEMOGLOBIN, WHICH CARRIES OXYGEN IN BLOOD.** Many athletes take supplemental iron because they think it will boost oxygen transport capacity and endurance. This might be a mistake. High blood levels of iron have been linked to heart attack and stroke. A study led by Scott Ayton from the University of Melbourne in Australia found that high ferritin iron levels in cerebrospinal fluid (brain fluid; CSF) were linked to the development of Alzheimer's disease. People with a gene variant called APOE-e4 were particularly sensitive to increases in CSF iron. While iron deficiency is common in female athletes, most male athletes should avoid iron supplements. (Nature Communications, 6: article number 6760, May 19, 2015)



## Omega-3 Fatty Acids Improve Performance

**POLISH RESEARCHERS FOUND THAT OMEGA-3 SUPPLEMENTS IMPROVED ENDURANCE CAPACITY IN CYCLISTS BY INCREASING CONCENTRATIONS OF NITRIC OXIDE BY EIGHT MICROMOLES PER LITER, AND BOOSTED MUSCLE BLOOD FLOW BY OVER FIVE PERCENT COMPARED TO A PLACEBO (FAKE OMEGA-3S).**

This study agrees with several investigations from the University of Tokyo, which found that supplementing omega-3-rich fatty acids boosted exercise efficiency. Subjects took a daily dose of 3.6 grams per day of the omega-3s EPA and DHA. Omega-3 fatty acids—found in fish oil supplements, fish, walnuts, soybeans, beef and shrimp—promote blood vessel health and reduce the risk of heart attack and stroke. (Nutraingredients.com, May 6, 2015)

## Omega-3 Fatty Acids in Fish Oil Prevent Age-Linked Muscle Loss

**FISH OIL HIGH IN OMEGA-3 FATTY ACIDS MAY BE AN EFFECTIVE ANTI-AGING SUPPLEMENT THAT PREVENTS MUSCLE LOSS AND SLOWS CELL AGING.** Gordon Smith and colleagues from Washington University School of Medicine in St. Louis supplemented fish oil in 40 older adults for six months. Fish oil therapy slowed muscle loss normally occurring with age. Measures included thigh muscle volume, handgrip strength, one-repetition maximum on the leg press, chest press, knee extension and knee flexion. Other recent studies found that omega-3s prevented telomere shortening in the cells, which promotes cell longevity. Omega-3 fatty acid supplements may prevent muscle loss with aging and improve cell health and longevity. (American Journal Clinical Nutrition, published online May 20, 2015)

## VITAMIN B3 SUPPLEMENTS DECREASE the Risk of Some Skin Cancers



**NICOTINAMIDE, A FORM OF VITAMIN B3, DECREASED THE RISK OF NON-MELANOMA SKIN CANCERS BY 23 PERCENT— ACCORDING TO A STUDY LED BY DIONA DAMIAN AND CO-WORKERS FROM THE UNIVERSITY OF SYDNEY IN AUSTRALIA.** They studied the effects of vitamin B3 supplements on 400 high-risk patients who had at least two non-melanoma skin cancers during the previous five years. Patients took either vitamin B3 or placebo (fake vitamin B3) for six months. This simple treatment reduces the risk of basal and squamous cell skin cancers but does not affect the incidence of deadly melanoma. Vitamin B3 boosts the metabolism of skin cells, which enhances repair of skin cell DNA and boosts the cells' immunity. Vitamin B3 supplements are a cheap and effective way to prevent some types of skin cancer. (HealthDay News, May 13, 2015)



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## WHY MORE PEOPLE GET SICK IN THE WINTER

RATES OF COLDS, FLU, HEART ATTACK, STROKE, AUTOIMMUNE DISEASE AND PSYCHIATRIC ILLNESSES ARE MUCH HIGHER IN THE WINTER THAN IN THE SUMMER. Researchers from University of Cambridge in the United Kingdom found increased activity levels of genes controlling the immune system during colder times of the year. They examined immune system activity in the United Kingdom and Gambia (located in Africa) during different seasons of the year. Inflammation, which is linked to poor metabolic health and the long-term risk of heart attack and stroke, was higher during the colder months. The cold months of the year can be dangerous for your health. (Nature Communications, published online May 12, 2015)

## BENEFITS OF EXERCISE: Nature or Nurture?

PEOPLE LIKE TO BLAME EXCESS FAT AND POOR ATHLETIC ABILITY ON THEIR GENES. True,

genes influence physical fitness, aerobic capacity, body composition, temperature regulation and cardiovascular health. However, lifestyle can help people with less than Olympian genes achieve better health and wellness. Finnish researchers from the University of Jyväskylä, in a study of active and sedentary identical and non-identical twins, found that physical activity overcame the effects of genetics. The active twin showed lower levels of abdominal fat, more robust cardiovascular systems and stronger bones. Typically, identical twins with similar lifestyles show nearly identical levels of body composition and physical capacity. Regular physical activity can overcome genetic handicaps. (Twin Research and Human Genetics, published online March 11, 2015)

## Many Bodybuilders Suffer From **MUSCLE DYSMORPHIA**

**BODY DYSMORPHIA IS THE PATHOLOGICAL OBSESSION WITH BODY COMPOSITION AND APPEARANCE THAT INTERFERES WITH DAILY LIFE.** Australian scientists concluded that a significant portion of weightlifters and bodybuilders in Australia are at increased risk of muscle dysmorphia, body dysmorphic disorder and eating disorders. These conditions are characterized by use of performance-enhancing drugs, extreme diets and obsessiveness about body fat and muscle symmetry. The researchers' conclusions were based on an online survey completed by 648 athletes. The problem with these kinds of studies is that they confuse dedication to training with abnormal behavior. Attaining excellence in bodybuilding and strength-power sports requires extreme dedication that goes beyond "normal" behavior. Arnold Schwarzenegger, for example, didn't attend his father's funeral because it would have interfered with his training for the Mr. Olympia contest. Was this obsessive behavior or the mark of a champion? By definition, champions are on the fringes—and attaining championship form requires extraordinary dedication and obsessiveness. (Journal Strength Conditioning Research, 29: 1406-1414, 2015)



## Walk Every Day

**WALKING EVERY DAY IS ONE OF THE BEST THINGS YOU CAN DO TO PROMOTE HEALTH AND LONGEVITY.** Walking promotes metabolic health, which improves brain function and prevents premature death. Even short periods of standing instead of sitting give you a metabolic boost. Walking promotes mobility, which helps you maintain independence as you age. It also prevents some kinds of cancers, such as colon cancer, prostate cancer and reproductive cancers. Walking strengthens the heart and boosts the health of the blood vessels. People spend a fortune on expensive health foods and medicines. Walking is free and promotes health and long life. (Nutrition Action Healthletter, June 2015)

## Moderate Coffee Consumption Is Good for Health

**DRINKING COFFEE HAS BEEN LABELED AS AN UNHEALTHY PRACTICE FOR MORE THAN 100 YEARS.** Some religions discourage coffee drinking because it's considered a vice. More than 36 high-quality medical studies found the opposite—moderate coffee consumption reduces the risk of cardiovascular disease, liver disease and diabetes, and has no effect on the risk of various kinds of cancer. Coffee reduces the risk of Parkinson's disease and prevents mental decline with age. Most important, coffee drinking is linked to increased longevity. Coffee is an important part of a healthy diet. (The New York Times, May 14, 2015)





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## Are Your Medicines Making You Sick?

**SEVENTY PERCENT OF AMERICANS TAKE AT LEAST ONE PRESCRIPTION DRUG AND 50 PERCENT TAKE THREE OR MORE.** These include antibiotics, antidepressants, painkillers, drugs to lower blood pressure and blood fats and drugs to promote erections. Many people take drugs to prevent disease. This is consistent with the American philosophy of medical treatment—take a pill. We don't fully understand the interactions of taking many drugs at the same time. Also, overreliance on medications decreases the personal responsibility necessary for leading a healthy lifestyle. Many drugs have side effects that can be worse than the conditions they were designed to cure. As examples, statins lower cholesterol, but they can cause muscle and joint pain that keep people from exercising. Birth control pills prevent pregnancy, but they can also suppress sex drive. Overuse of painkillers has become a national epidemic that has prompted significant regulatory action by the U.S. Food and Drug Administration (FDA). Americans are overmedicated, which is interfering with their ability to lead healthy lifestyles. (NewScientist, May 16, 2015)



## Mindful Meditation Improves Sleep

**MINDFULNESS IS CONCENTRATING NON-JUDGMENTALLY ON THE PRESENT MOMENT.** Incorporating mindfulness with meditation can improve sleep quality, according to a study led by David Black from the University of Southern California. They studied adults with moderate sleep problems and assigned them to treatment groups that received instruction on healthy sleep patterns or mindful meditation. The mindful meditation group showed the greatest improvement in sleep quality and reductions in insomnia. The authors concluded that this meditation technique could help people sleep better at night without the side effects of sleep-inducing drugs. (Journal of the American Medical Association Internal Medicine, published online February 16, 2015)



## The Environmental Working Group *Blasts* Sunscreens

**THE ENVIRONMENTAL WORKING GROUP IS AN ENVIRONMENTAL THINK TANK BASED IN WASHINGTON, D.C. THAT ATTEMPTS TO PROTECT THE PUBLIC FROM ENVIRONMENTAL TOXINS, PROMOTE HEALTHY NUTRITION AND EXPOSE QUESTIONABLE CONSUMER PRODUCTS.** Each year, they publish a report on sunscreens and their effects on preventing skin cancer and premature skin aging. They concluded that sunscreens do not prevent melanoma, the most deadly form of skin cancer. Sunscreens with a high sun protection factor (SPF) encourage people to stay out in the sun too long. Most sunscreens contain vitamin A additives, which may speed the development of skin cancer. European sunscreens contain more UVA ray-filtering chemicals and better protect the skin than American products. Most people don't use enough sunscreen and don't apply it often enough to protect from skin damage. Some sunscreens contain chemicals that disrupt hormone regulation. You can get a copy of the report from The Environmental Working Group's website, [www.ewg.org](http://www.ewg.org). (EWG's Guide to Sunscreen, published online May 2, 2015)





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## SHOULD YOU EAT EGGS?

**CLASSIC SCIENTIFIC STUDIES, SUCH AS THE FRAMINGHAM AND SEVEN COUNTRIES STUDIES, SHOWED THAT ELEVATED BLOOD CHOLESTEROL WAS LINKED TO HEART ATTACK AND STROKE.** Eggs are unusually high in cholesterol, so they were blamed for a good portion of the heart disease in America. Frank Sacks from Harvard University said that saturated fat in foods was more important than cholesterol for boosting blood cholesterol and that eggs were unfairly blamed for the high rate of heart disease in America. While eggs are experiencing a nutritional renaissance, other studies show that eggs are not a risk-free food. People with diabetes who ate one egg a day increased their risk of heart disease by 44 percent compared to people who only ate one egg per week. Egg eaters are also more likely to get prostate cancer. Most mainstream nutritionists recommend that people follow healthy dietary patterns that include increased consumption of fruits, vegetables, whole grains, low-fat dairy, seafood, beans and nuts. People should also consume alcohol moderately, reduce intake of red and processed meats, and reduce consumption of high sugar foods. Eggs can be part of a healthy diet. (Nutrition Action Health Letter, June 2015)



## Sodium Bicarbonate Improves Interval Training Performance

**SODIUM BICARBONATE IMPROVES PERFORMANCE DURING HIGH-INTENSITY INTERMITTENT EXERCISE— ACCORDING TO A STUDY LED BY PETER KRUSTRUP FROM THE UNIVERSITY OF COPENHAGEN IN DENMARK.** Test subjects performed an interval training workout with and without sodium bicarbonate supplements. Sodium bicarbonate increased exercise performance, elevated blood lactate and bicarbonate, and lowered their perception of effort. Sodium bicarbonate supplements increase bicarbonate levels in blood, which is an important blood buffer. Bicarbonate draws lactate from muscle to blood, which helps fight fatigue. Most studies find that sodium bicarbonate supplements cause severe side effects such as nausea, vomiting, diarrhea and abdominal cramping. Only about 50 percent of people can tolerate this treatment. However, many recent studies have shown that intermittent high-intensity exercise produces rapid improvements in fitness. Athletes who can tolerate bicarbonate ingestion might benefit even more from high-intensity workouts. (Journal International Society Sports Nutrition, published online June 4, 2015)

## Protein-Carbohydrate Drink Consumption Promotes Recovery

**INTENSE GROUP TRAINING IS COMMON IN SPORTS SUCH AS FOOTBALL, WRESTLING, WEIGHTLIFTING, TRACK AND FIELD, AND CROSS-COUNTRY.**

Typically, these camps involve a week of repeated high-intensity workouts that often leave athletes overtrained or injured. Researchers from the University of Copenhagen in Denmark found that consuming a protein-carbohydrate supplement before and after each workout resulted in improved performance with less evidence of muscle damage compared to athletes fed carbohydrate drinks. The researchers studied elite athletes participating in a one-week training camp. (International Journal Sports Nutrition and Exercise Metabolism, 25:97-109, 2015)



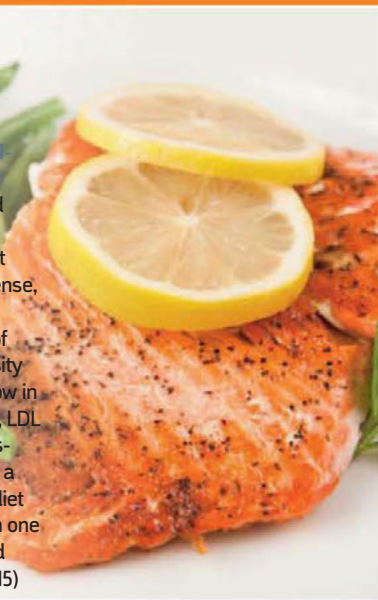
## ATHLETES SHOULD Pay Close Attention to Protein Intake

**PROTEIN IS A CRITICAL DIETARY COMPONENT THAT CAN PAY BIG DIVIDENDS TO BODYBUILDERS IF MANAGED CORRECTLY IN THE DIET.** Researchers from the University of New Mexico led by Kurt Escobar summarized the importance of protein in the active athlete's diet. Bodybuilders should consume close to 1.5 grams of protein per kilogram bodyweight per day. Consuming protein shortly before or after workouts enhances muscle protein synthesis. Co-ingesting carbohydrates with protein increases muscle protein synthesis and provides fuel for glycogen re-synthesis and skeletal muscle and the liver. Consuming 25-gram doses of protein throughout the day stimulates a more consistent increase in muscle protein synthesis. Elevated protein intake works best when combined with intense weight training. Finally, increased protein intake helps bodybuilders maintain muscle mass while trying to lose body fat. (Strength and Conditioning Journal, 37: 23-34, 2015)



## PALEO DIET *Improves Blood Fats*

THE PALEOLITHIC OR CAVEMAN DIET IS BASED ON CONSUMING BERRIES, NUTS, LEAN GRASS-FED MEATS AND FISH. Proponents of the diet claim that human genes evolved over thousands of years to optimize metabolism from eating these natural foods. Industrialization changed the human diet suddenly to include the consumption of grains and calorie-dense, high fat, processed foods. Food choices also increased dramatically, which promoted overeating and overconsumption of unhealthy foods. Researchers from Eastern Michigan University found that middle-aged adults consuming a Paleolithic diet low in grains experienced substantial decreases in total cholesterol, LDL cholesterol, triglycerides and increased HDL (the good cholesterol). These changes occurred after they had first consumed a traditional cholesterol-lowering diet. Critics of the Paleolithic diet point out that the diets of ancient humans varied greatly from one place to another, so that it is unlikely that metabolically linked genes adapted uniformly. (Nutrition Research, 35: 474-479, 2015)



## *Omega-3 Polyunsaturated Fatty Acids Decrease Blood Triglyceride Levels*

HAVING INCREASED BLOOD TRIGLYCERIDES IS A SIGNIFICANT RISK FACTOR OF HEART ATTACK AND STROKE. Regular physical activity reduces triglyceride levels in most people. However, less than half of population meets the minimum recommendation of 150 minutes per week of moderate intensity exercise. Consumption of omega-3 fatty acid supplements might help inactive people control blood fat levels. A literature review of 1,341 studies by researchers from the University of Guelph in Canada found that the consumption of more than 4 grams per day of omega-3 fatty acids reduced triglyceride levels between 4 and 51 percent. Omega-3 fatty acids may be an important heart-healthy food that could reduce the risk of heart attack and stroke. (Lipids in Health and Disease, 14(1): 53, 2015)



## CAPSAICIN *Protects Liver Cells*

CAPSAICIN, THE CHEMICAL THAT MAKES CHILI PEPPERS HOT, PROMOTES WEIGHT LOSS AND REDUCES FAT DEPOSITION BY INCREASING KEY PROTEINS IN FAT CELLS. It might also protect liver cells from fibrosis. A study from Belgium on mice found that supplementing their diets with capsaicin prevented liver cell fibrosis following closure of their bile ducts. Liver fibrosis is common in obesity and can occur with longtime use of anabolic steroids. Capsaicin supplements might protect liver function in bodybuilders who use anabolic steroids. This is speculation because no one has studied this directly. (Molecular Nutrition & Food Research, 59: 1107-1116, 2015)

## Olive Oil Basics

OLIVE OIL IS THE BASIS FOR THE MEDITERRANEAN DIET, WHICH IS LINKED TO INCREASED LONGEVITY, DECREASED OBESITY AND A REDUCED RISK OF HEART DISEASE.

Nancy Jenkins summarized essential knowledge about olive oil to help you get maximum enjoyment from this wonderful food. Buy olive oil in dark glass containers or tins that have been protected from the sun. The best olive oil is usually the most expensive and high-end labels usually contain the best quality oils. Fresh olive oil is best, so try to use it within 18 months of bottling. It's OK to heat olive oil above 250 degrees and use the oil for baking because olive oil is more stable than other oils. Finally, the best olive oil is low in omega-3 fatty acids. The health benefits come from their antioxidant polyphenols. Olive oil is a heart-healthy food that adds flavor to many dishes. Try to buy only the best. (The Wall Street Journal, May 15, 2015)



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## Testosterone Is Heart Healthy

**LOW TESTOSTERONE LEVELS ARE LINKED TO PREMATURE DEATH, CARDIOVASCULAR DISEASE, LOSS OF BONE AND MUSCLE, PSYCHOLOGICAL DEPRESSION AND DECREASED SEXUAL PERFORMANCE.** A recent study (JAMA, 310: 1829-1836, 2013) reported that testosterone supplements increased the risk of premature death, heart attack and stroke. Harvard endocrinologist Abraham Morgentaler countered that low testosterone levels are linked to cardiovascular disease. Testosterone therapy in aging men reduces death rates by 50 percent, increases exercise capacity and reduces the incidence of coronary artery disease risk factors such as waist circumference, insulin resistance and total body fat. Testosterone supplements improve the quality of life in aging men and do not increase the risk of cardiovascular disease. (Medscape.com, May 9, 2015)



**IN TESTOSTERONE THERAPY, THE DRUG IS INJECTED, APPLIED TOPICALLY AS A GEL OR CREAM OR TAKEN ORALLY.**

Each has limitations. Oral testosterone and anabolic steroids do not last long in the system or can be toxic to the liver. Many men receiving testosterone therapy use gels rather than injections because they don't like needles and feel that gels are more convenient. Gels help maintain a more consistent level of blood testosterone compared to injections. Typically, blood testosterone levels increase abruptly after an injection for three days, and then tail off after that. Levels do not spike when using gels and maintain consistent blood levels of the hormone, provided they are used regularly as prescribed.

One problem with testosterone gels is that they can be transferred from one person to another while they remain wet, which can be a problem when touching women or children. Inadvertent transfer can cause side effects such as abnormal hair growth, voice changes and masculinization. A new form of oral testosterone undecanoate developed at the New York University School of Medicine maintained blood testosterone consistently at natural biological levels. Unfortunately, it was administered twice a day, which might be too inconvenient for most men. Also, the drug had to be taken with fatty foods to avoid breakdown in the gut. The drug might be a good alternative to injections and gels. (Medscape.com, June 9, 2015)

## Afrezza Is Moderately Effective

**THE U.S. FOOD AND DRUG ADMINISTRATION (FDA) HAS APPROVED AN INHALED INSULIN PRODUCT CALLED AFREZZA, DEVELOPED BY SANOFI AND MANNKIND CORPORATION.** In 2006, the FDA approved an inhaled insulin product called Exubera, but the drug maker removed the product from the market because of low demand and reports of an increased incidence of lung cancer in patients



using it. Afrezza has its critics. The drug costs substantially more than other rapid-acting insulins, and it is only modestly effective in promoting long-term blood sugar control as measured by hemoglobin A1c levels in the blood. It also triggers chronic coughing and decreases lung function, so its long-term safety has been questioned. (Journal American Medical Association, 313: 2176-2177, 2015)



## TESTOSTERONE HELPS TREAT SPORTS INJURIES

**TESTOSTERONE INCREASES MUSCLE PROTEIN SYNTHESIS AND IS AN OBVIOUS TREATMENT FOR PROMOTING MORE RAPID HEALING OF SOME TYPES OF SPORTS INJURIES.** Unfortunately, testosterone's use as a performance-enhancing drug has discouraged its legitimate use in the rehabilitation of athletic injuries. A review of literature by Korean scientists discussed the benefits of the drug for exercise rehabilitation. Testosterone, when used under medical direction, is effective and efficient for promoting recovery and rejuvenation from athletic injuries and overtraining. However, a political cloud of uncertainty covers the use of testosterone in sport, which will make it difficult for legitimate medical uses in athletes. (Journal Exercise Rehabilitation, 11: 2-4, 2015)



## Robots Automate Needle Insertion

TEN PERCENT OF AMERICANS HAVE A FEAR OF NEEDLES CALLED TRY PANOPHOBIA. They freak out about painful injections or botched procedures. Some of these fears are justified. Placing needles in arteries and veins can lead to severe side effects such as bleeding, blood clots, cardiac arrest and infections. Scientists from Israel and the United States have developed an automated procedure using ultrasound and a robot to accurately insert catheters into blood vessels. Prototypes have inserted venous catheters flawlessly in less than two minutes. While the technique works well in animal models, it has not been approved for human clinical trials. (The Economist, April 11, 2015)



## Testosterone Implants Offer Long-term Treatment Option For Testosterone Therapy

IN THE 1966 SCIENCE FICTION FILM "FANTASTIC VOYAGE," SCIENTISTS SHRUNK TO MICROSCOPIC SIZE TRAVELED INTO THE BODY TO REPAIR THE DAMAGED BRAIN OF AN IMPORTANT PERSON WHO WAS SHOT IN THE HEAD. While we can't travel around in the body in miniature spaceship-like vehicles, nanomedicine is a reality. Miniature systems can be implanted in the body to deliver drugs and monitor organ and cell function. Scientists led by Alessandro Grattoni, from the Department of Nanomedicine at Houston Methodist Research Institute, reported the development of a nano-testosterone delivery system that could maintain normal testosterone levels for six months in hypogonadal men. When approved and available, this system will provide a simple way to maintain biologically normal levels of the hormone. (Journal of Sexual Medicine, published online June 5, 2015)

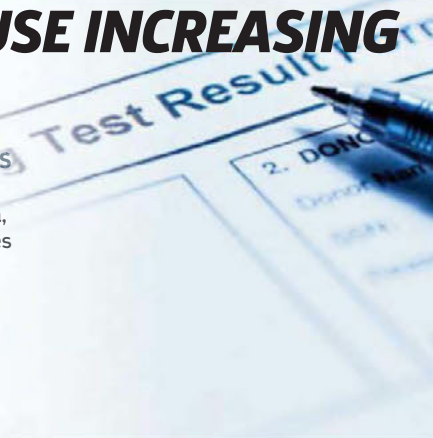
## Metformin Prevents Prostate Cancer Growth

METFORMIN (SOLD AS GLUCOPHAGE) IS THE PRIMARY DRUG USED TO TREAT TYPE 2 DIABETES. It works by suppressing blood sugar production in the liver. Some studies show that it prevents cardiovascular disease and perhaps cancer in diabetics. Chinese researchers found that metformin slowed the growth of human prostate cancer cells cultured in the laboratory by targeting androgen receptors. The researchers concluded that metformin might efficiently target prostate cancer cells with minimal side effects. These results have not been replicated in living humans. (The Prostate, published online April 20, 2015)



## WORKPLACE DRUG USE INCREASING

THE NUMBER OF POSITIVE DRUG TESTS IN THE WORKPLACE INCREASED DRAMATICALLY DURING THE PAST TWO YEARS, ACCORDING TO DATA FROM QUEST DIAGNOSTICS INCORPORATED, THE NATION'S LARGEST MEDICAL SCREENING LABORATORY. The most commonly detected substances included marijuana, amphetamines, oxycodones (OxyContin), benzodiazepines (Xanax) and opiates. These findings reflect increased drug use in the general population. Of interest, positive tests in Colorado and Washington (where marijuana was legalized) were no higher than other states. Nearly half of employers in America require pre-employment drug screens and will not hire applicants who fail the tests. (The Wall Street Journal, June 12, 2015)



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## A BUG'S LIFE: Size Matters

**WOMEN OFTEN SAY THAT SIZE DOESN'T MATTER.** They are more concerned with what's in a man's heart. That's not true in the animal kingdom and it's probably bullshit in people, too. British researchers, led by Liam Dougherty from the University of St. Andrews, found that reducing penis length in seed bugs (*Lygaeus simulans*) by 30 percent reduced their frequency of sexual activity. These insects are unique because their penises are 70 percent of their body length. If people had similar proportions, a six-foot tall man would have a four-foot long penis. Studies show consistently that women prefer penises about 6.5 inches long. Most women choose girth over length because it puts more pressure on the clitoris. The study showed that penis size is as important in seed bugs as it is in humans. (Proceeding of the Royal Society B, published online May 13, 2015)

## Frequent Ejaculation Reduces the Risk of Prostate Cancer

**PROSTATE CANCER IS THE SECOND MOST COMMON CANCER IN AMERICAN MEN (SKIN CANCER IS FIRST).** In 2015, cancer experts expect about 220,800 new cases of prostate cancer and 27,540 deaths from the disease. About 14 percent of men will be diagnosed with prostate cancer during their lifetimes. While regular exercise and consuming a healthy diet might reduce the incidence of the disease, scientists can't really point to any modifiable risk factors—until now. A study led by Jennifer Rider from Harvard University found that frequent ejaculation reduced the risk of prostate cancer. Researchers followed about 32,000 men for 18 years. Nearly 4,000 men developed prostate cancer and 384 of them died. Men who ejaculated 21 times a month reduced their risk of the disease by 20 percent. The most frequent ejaculators in the study were divorced men in their 40s. The best way to prevent prostate cancer is to have more sex—with a partner or by yourself. (Paper presented at the American Urological Association Annual Meeting (abstract PD6-07), May 15, 2015)

## Inactivity Linked to Decreased Sperm Counts

**SPERM COUNTS HAVE BEEN DECREASING IN MEN IN WESTERN COUNTRIES SINCE THE BEGINNING OF WORLD WAR II.** Possible reasons include chemicals in the environment that mimic the effects of estrogens, plastic waste, prescription medications, foods high in plant estrogens, farm chemicals and industrial chemicals. Physical inactivity can also trigger reduced sperm counts—according to a study led by Audrey Gaskins and Jorge Chavarro from Harvard University School of Public Health. Sperm counts were 73 percent higher in active compared to inactive men. Men who watched the most TV had 40 percent lower sperm counts than non-TV watchers. Physical activity is essential for optimal metabolic health. Increasing physical activity improves sexual performance. (British Journal Sports Medicine, 49: 265-270, 2015)



## Key Findings From Brazil Sex Meeting

**SEX RESEARCH HAS COME A LONG WAY SINCE ALFRED KINSEY FOUNDED THE KINSEY INSTITUTE FOR RESEARCH IN SEX, GENDER AND REPRODUCTION AT INDIANA UNIVERSITY IN 1947.**

At the 16th World Meeting on Sexual Medicine held in Brazil, scientists presented more than 250 studies. Highlights included:

- Injections of long-acting testosterone undecanoate four times a year reduced the incidence of erectile dysfunction (ED) and improved erection quality.
- Testosterone replacement therapy had no effect on the initiation or progression of cardiovascular disease.
- Shockwave therapy was effective for reducing ED.
- Young men with low testosterone levels and inflammation had an increased risk of erection problems.
- Erectile dysfunction is an important predictor of cardiovascular disease.
- Testosterone therapy reduced waist circumference and body fat in men with low testosterone levels.
- Clomiphene citrate and human chorionic gonadotropin were effective fertility treatments in men.
- Coenzyme Q10 improved semen quality in men treated in fertility clinics.
- Ninety-seven percent of patients were satisfied with a new penis-lengthening surgery developed at the Prince Sultan Military Medical City in Saudi Arabia.

These studies were research presentations and do not carry the same weight as studies presented in high-quality, peer-reviewed journals. (Journal Sexual Medicine, 12(supplement 1): 1-96, 2015)





## HCG Causes Improved Sperm Counts After Testosterone Use

MANY BODYBUILDERS AND AGING ADULTS TAKE TESTOSTERONE AND OTHER ANABOLIC STEROIDS TO INCREASE MUSCLE MASS AND PROMOTE PHYSICAL VIGOR. Prolonged testosterone use decreases sperm counts, which can impair reproductive capacity. A study led by Larry Lipshultz and Evan Wenker, from Baylor University College of Medicine, found that human chorionic gonadotropin (HCG) injections increased sperm counts in men suffering from low sperm output due to prolonged testosterone use. HCG improves reproductive function after using testosterone. (Journal Sexual Medicine, 12: 1334-1337, 2015)

## The Metabolic Syndrome Increases the Risk of Erectile Dysfunction by 260 Percent

THE METABOLIC SYNDROME IS A GROUP OF HEALTH PROBLEMS THAT INCLUDES INSULIN RESISTANCE, HIGH BLOOD PRESSURE, TYPE 2 DIABETES, ABNORMAL BLOOD FATS AND ABDOMINAL OBESITY. It is a disease of energy use and storage, and is triggered by physical inactivity, overeating, poor diet and genetics. A meta-analysis conducted by Turkish researchers concluded that erectile dysfunction (ED) was 260 percent higher in men suffering from the metabolic syndrome compared to metabolically healthy men. Erectile dysfunction was particularly prevalent in men with low testosterone levels and diabetes. Treatments might include regular aerobic exercise, healthy diet, hormone replacement therapy and erection-promoting drugs such as Viagra. (Journal Sexual Medicine, 12: 1309-1318, 2015)

## BLOOD PRESSURE DRUGS Linked to Erection Problems

HIGH BLOOD PRESSURE (HYPERTENSION) AFFECTS 50 MILLION AMERICANS AND CAN CAUSE STROKES, HEART ATTACKS, KIDNEY DISEASE AND ERECTILE DYSFUNCTION. Medications such as diuretics, aldosterone receptor blockers and beta-adrenergic receptor blockers can successfully reduce blood pressure, but these drugs may cause erectile dysfunction— according to a literature review by Steven Chrysant from the University of Oklahoma College of Medicine. Drugs such as Viagra and Cialis can often prevent the sexual side effects of blood pressure medications. (Current Opinions Cardiology, 30: 383-390, 2015)

## FDA Committee Approves 'Viagra for Women'

FORTY PERCENT OF WOMEN SUFFER FROM LOW SEXUAL AROUSAL, WHICH CAUSES SIGNIFICANT ANXIETY AND CONCERN IN WOMEN AND MEN. In early June, an advisory committee of the U.S. Food and Drug Administration (FDA) approved the use of flibanserin (Sprout Pharmaceuticals) for treating hypoactive sexual desire disorder in women. Clinical studies found that the drug increased sexual desire and the frequency of satisfying sex. It is a non-hormone drug that works by stimulating the brain's centers for motivation and rewards. Side effects, such as dizziness, nausea and sleepiness, have prevented FDA approval in the past. Men have drugs such as Viagra, Cialis, Levitra and testosterone for boosting sexual performance, but sexual problems are more complex in women than men. Contributing factors to low sexual desire in women such as stress, relationship problems, difficulty reaching orgasm, loss of intimacy and poor metabolic health are not cured easily by a pill. (The New York Times, June 4, 2015)

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# BETTER ABS, BETTER SEX

## A SCIENTIFIC APPROACH



Everyone enters the gym—excuse me, fitness center—with unique goals. We all have different motivations that drive us to endure the physical and mental demands of a rigorous workout, face the indignity of struggling in the presence of strangers, and develop sweat stains on clothing that becomes a bit more revealing than intended at the most inopportune moments. After all that discomfort, the reward for many is a “power shake” that has the consistency of gruel, smells faintly of lawn clippings and satisfies hunger no longer than the time it takes to drive by a fast-food restaurant pumping out that french fry smell that turns the most sophisticated ladies and gentlemen into human versions of Pavlov’s dogs.

Why do people return to the gym, day after day? Why do they abstain from the pleasures of pizza and pastries? What possible reward is worth that? Certainly, many do it out of a sense of enjoyment or self-respect; to improve health; increase productivity and safety at work or home; enhance competitive ability in sports or social status; or an obligation to reach a desired level of fitness. Yes, those are valid and socially correct reasons for achieving a physical state that has been recognized as ideal and aesthetic for millennia. However, an underlying goal is embedded into the genetic heritage of our species: gaining sexual favor with a potential mate or mates.

As crude as it may sound in today’s world of global overpopulation and long-delayed frank discussions about

***A six-pack, ripped abs or V-taper—however you want to refer to the ‘look’—is a sign that all systems should be ‘go.’***

abusive behavior toward women by misogynist cultures and individuals (e.g., college campus sexual assaults, sexual torture and slavery by religious extremists, etc.), the pursuit of



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Glutamic Acid	4838mg
Glycine	412mg
Histidine	894mg
Isoleucine	1388mg
Leucine	2192mg
Lysine	1801mg
Methionine	481mg
Phenylalanine	1172mg
Proline	1278mg
Serine	1367mg
Threonine	998mg
Tryptophane	304mg
Tyrosine	1360mg
Valine	1606mg

**KEY BCAAs**

**2.2G**

LEUCINE

**1.3G**

ISOLEUCINE

**1.6G**

VALINE

SUGAR  
FAT  
**1G**

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sexual reward is a powerful motivator down to the most base part of the brain. Need proof? Just look at the role of “sex” in advertising.<sup>1</sup> Thankfully, humans are capable of applying reason when choosing to engage in sexual behavior, and have resources to allow for the enjoyment of recreational sex when properly using methods to reduce the odds of conception (i.e., pregnancy). Cultures that prohibit the use of “birth control” or do not protect a woman’s rights and safety are outside the scope of this discussion.

***Sexual intercourse is a physically strenuous act or series of acts. In fact, it is recognized as an important risk factor for a heart attack. So, spend a little time on the treadmill, men, if you want to survive heated moments of passion.***

## IN SEARCH OF A SIX-PACK

In regard to physical attraction, potential mates consciously or subconsciously evaluate the fitness, health and sexual potential of their prospective partner. Discounting the equally (or greater) important aspects of attraction that depend upon character, personality, humor, stability, social and psychological compatibility, etc., a person with a lean and athletic core provides a positive stimulus in regard to sexuality. Certain cultures deviate to more “Rubenesque” women (plump in a pleasing or attractive manner), who are desirable as they are believed to represent greater fertility and capability to deliver healthy newborns. Perhaps more importantly, those who see themselves as highly selective are likely to look for, and pursue as a goal for him/herself, a person with similar features.<sup>2</sup> In other words, if you are attracted to a physically fit woman, she is likely seeking a physically fit man. With rare exception, “opposites attract” is little more than a myth.

For the man, there is a functional purpose supporting the presentation of a solid, well-developed core in regard to his ability to perform sexually, both for his pleasure and his partner. Certainly, the implication of good health, fitness, ability to adhere to the discipline of exercise and a sound diet, and avoid the metabolic problems associated with abdominal obesity, are fundamentals that tend to give a man with prominent abdominal muscles an advantage over his abdominally flaccid or obese competitor. However, there is also the “eye candy” effect. For sheerly hedonic pleasure-seeking women, nothing grabs the eyes like a set of washboard abs and a nice set of buns. These two features regularly grab the top spots on body parts women focus on when judging a man’s level of attractiveness.

So, insofar as attracting a partner—for many, the greatest barrier to a fulfilling sex

life—it is apparently key to drop the body fat down to where the abdominal muscles are apparent and the musculature of the buttocks are sculpted. The key steps, of course, are to manage the diet so that body fat is maintained in the upper single digits, and incorporate an exercise routine that creates tone, definition and aesthetic hypertrophy (muscle size) to attract the desired level of attention. Once the “look” has been achieved, is there any further value to having a “six-pack” of abs, strong spinal erectors and the butt of a thoroughbred

stallion? Interestingly, form does dictate function to some degree. A solid and sexy core offers the promise of optimal sexual function. Never forget, though, that sexual interaction is only part of a relationship. If you are not capable of developing and maintaining a healthy relationship, you will only be experiencing the transient physical pleasure. Many of the greatest rewards of a sexual relationship are experienced when it supports a thriving relationship; not just satisfying your momentary urges with no regard for your partner. Some of the gravest risks come from indiscriminate promiscuity—or hooking up with pretty much anyone.

## 50 SHADES OF LUST

The physical act of intercourse was for a time fairly uniform, and globally understood. Most major religions utilized the physical representation of intercourse to affirm the role between man and woman, with the man in the dominant position. Puritanical influences in British and early American history assigned shame and guilt to LUST—one of the seven deadly sins. Thus the “missionary position” nomenclature, which was referred to by Shakespeare as the “beast with two backs.” This was not always so. The Talmud and many other sources refer to Lilit (apparently the first woman, created alongside Adam) as a sexually voracious woman who would defile men with her sexual dominance. She left, or was cast out of, the Garden of Eden for refusing to “lie beneath Adam,” a reference often interpreted as relating to the “missionary position.”

Author EL James brought sexual exploration into the spotlight with the success of the *50 Shades of Grey* trilogy. Again, a story revisited instead of being creative or innovative. Sexual exploration exists in some of the most ancient texts, such as the *Kama Sutra* or the writings of the Marquis de Sade, and it contin-

ues in pulp fiction today. Clearly, the need for a strong core is a necessity if exploring some of the more acrobatic positions.

Getting down to the “meat of the matter,” sexual intercourse involves: being able to develop desire and arousal (mental health); intact erectile function (circulatory and endocrine health); physical strength, endurance and flexibility to perform sexually (musculoskeletal and cardiovascular health); ejaculation (sexual function) and post-coital bonding (relationship and social health).

A six-pack, ripped abs or V-taper—however you want to refer to the “look”—is a sign that all systems should be “go.” Let’s call the “look” ripped abs, just for simplicity sake. Though most people of all shapes and sizes are mentally healthy, maintaining a healthy and aesthetic physique is often a reliable sign of a mature and stable personality, as well as a balanced lifestyle in adults. Of course, many young people benefit from their age in being able to develop abs through their youthful metabolism and the physical nature of much of their recreation (dance, sports, etc.). Also, there are a number of people who are fixated upon their appearance to the point of having a personality disorder or frank psychosis.<sup>3</sup> Yet, compare the psyche of a fit person who is satisfied with his body image to one who is dissatisfied with being obese, or to the psyche of someone who is normal weight but lacking muscular development due to a sedentary job or lifestyle, or even to the psyche of someone who is fit but has a negative self-perception. These negative emotions can be amplified by interaction when seeking approval or acceptance. A negative self-image can also cause insecurities in a relationship, leading to unhealthy distrust, jealousy or a constant need for reinforcement.<sup>4</sup>

So, though it seems superficial, being in shape can support a healthy mental state by preventing dissatisfaction relating to a negative self-image, reduce concern about competitive males, express a stable mood and enable a trusting relationship. Abs, in and of themselves, are not a sure thing in regard to mental health. In some cases, it can be an indication of narcissism, obsession, eating disorders, drug abuse or just being a “diva.”<sup>5,6</sup> However, all else being equal, a nice taper and set of abs can promote mental health and boost confidence in receiving others’ approval and acceptance.

## GOOD HEALTH, GREAT ABS AND BETTER SEX

You just can’t develop a great set of abs without being physically active and consuming a nutritious diet (most of the time). Avoiding abdominal obesity greatly reduces the risk of metabolic syndrome, and physical activity helps promote insulin sensitivity.<sup>7,8</sup> The



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metabolic syndrome includes hypertension, high cholesterol, abdominal obesity, insulin resistance and other maladies. By avoiding the onset of metabolic syndrome—thought by many to be preceded by insulin resistance and obesity-related inflammation—vascular functions are well maintained. It should be noted that certain conditions affecting vascular health are inherited.

The most evident vascular function for men is obtaining and maintaining an erection. Erectile dysfunction has several different causes, but the most prevalent is small-vessel disease (the smaller arteries that supply blood to tissue, including the penis).<sup>9</sup> Viagra-like drugs work by prolonging the dilation (opening) of those small vessels, supporting the blood flow necessary to “get it up.” A well-developed and ripped midsection and a fit core strongly suggest that the conditions leading to vasculogenic erectile dysfunction are NOT present. Also, as visibly apparent abs are some of the “last to appear” and “first to go” muscles, it is a sign that your follow a lifestyle that is not likely to dissipate. For the doubters, a study published in 2012 reported exercise in men under 40 is associated with better erectile function.<sup>10</sup>

Beyond that, abs may indicate that you have an endocrine system that is in balance, with a strong testosterone presence. The muscular development notable in the core, and hopefully with full-body symmetry, indicates that testosterone activity is fully expressed. Certainly, erectile function is dependent upon testosterone's actions (as well as its metabolites). However, this occurs at a concentration that is well below what is necessary for bone and muscle mass maintenance.<sup>11,12</sup> Showing that you can develop muscle, have a waist circumference that provides a V-taper and are comfortable with your physical image ... the sum total is pretty much a visual guarantee

that you are capable of performing sexually.

OK, you attract your partner who anticipates that you have the goods. Mission accomplished? No, of course not—there is still the main event. Sexual intercourse, which of course depends upon desire, comfort, foreplay and a multitude of other underappreciated factors, is a physically strenuous act or series of acts. In fact, sexual intercourse is recognized as an important risk factor for a heart attack.<sup>13</sup> So, spend a little time on the treadmill, men, if you want to survive heated moments of passion. Sex does burn calories, but the effect is less than other forms of exercise, like riding a bike.<sup>14</sup> So, enjoying sex frequently might have a limited conditioning effect, but it would need to be discussed with your physician first, just like any diet or exercise program.

## ARE YOU READY TO RUMBLE?

Most sexual positions and motions involve pelvic motion of variable but considerable force and frequency. For the more vigorous, a man may be supporting some or all of his bodyweight; possibly that of his partner as well. Frankly, the frightening possibility of a sex-gym franchise is not outside the realm of marketing creativity. However, it is more important for immediate needs of the partners involved that muscular strength is already present in the abdominal, pelvic and gluteal muscles. Developing the abs for looks will provide the cross-benefit of increasing the strength of these muscles as well. If your partner is attracted to a fit physique, this will provide visual, tactile and functional sensation during an event of heightened desire and arousal. A woman experiences more frequent and intense orgasms if she views her partner as attractive—more so if her friends find her partner attractive.<sup>15</sup> Self-confidence (improved with a positive self-image in the male) and fi-

nancial wealth also play a factor. Sadly, doing crunches and leg lifts are not a proven road to becoming independently wealthy.

The importance of core strength and integrity in sex can be seen when it is absent (e.g., back injury) or by appreciating the dynamics of the repeated thrusting that characterizes penile-vaginal intercourse, and other variations. Men who suffer from chronic lower back pain, which can be prevented or reduced with core strengthening, suffer twice as many complaints of sexual dysfunction—including erectile dysfunction, loss of libido and painful intercourse positions.<sup>16,17</sup> In observance of the risk of back pain, a study compared three sexual positions for spine motion. All three depended upon spinal flexion (abdominal strength), as opposed to extension (lumbar erectors). Quadruped (doggy-style) involved the most rapid movement, with side-lying being the slowest; missionary style was the third position. Interestingly, the most “back-friendly” for the man is doggy-style, with the woman supporting her weight on her elbows.<sup>18</sup> For the woman, the same position but raised to rest her weight on her hands is most comfortable.<sup>19</sup> Again, only three positions were noted, with variations—and the goal was to seek back comfort, not sexual stimulation.

A well-defined core, in a mentally healthy man, is a sign of sexual function and potential prowess when viewed by prospective partners. Great abs demonstrate an adherence to a healthy lifestyle, physical attractiveness, metabolic health, vascular function, hormonal (testosterone) sufficiency, strength and structural integrity—strong indicators that proclaim to an interested party that you are capable of providing a satisfying sexual relationship.

Hard to imagine a more motivating reason to work the core. ■

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# **CAPSAICIN:**

## ***Boosts Metabolic Rate and Testosterone While Dieting***

Many people can lose weight for a few months, but many struggle to maintain that weight loss over longer periods of time. One explanation for the inability of long-term weight loss is that dieting initiates homeostatic mechanisms that reduce energy expenditure within the body, ultimately promoting a positive energy balance that results in a return to previous weight levels. Of course, reduced energy expenditure from low caloric intake also makes it difficult for anyone trying to exclusively gain lean muscle mass, as depleted energy expenditure also inhibits fat loss. Consequently, the capacity to blunt this diet-induced reduction in energy use should enhance the ability to decrease body fat and keep it off, too.

### **THERMOGENICALLY INCREASE ENERGY EXPENDITURE**

Attempts to advance weight loss, and weight-loss maintenance, by increasing energy expenditure have recently embraced the use of several naturally occurring compounds, including capsaicin, which is the agent in chili peppers that provides the hot and spicy flavor. Capsaicin has been shown to potently increase energy expenditure by stimulating a process known as thermogenesis.<sup>1</sup> Although the mechanism of action is not completely understood, some of the details include capsaicin activation of the TRPV1 receptor found within the oral cavity, and gastrointestinal tract, which triggers the release of noradrenaline. The release of noradrenaline then increases energy expenditure and fatty acid oxidation within brown adipose tissue (BAT) by stimulating thermogenesis, which uncouples the normally linked process of fatty acid oxidation with cellular energy production in the form of ATP. As a result, instead of the energy from fat being used to synthesize ATP, which requires active processes like muscular contraction to increase energy expenditure, energy is instead directly converted into heat, increasing energy expenditure.

The ability of capsaicin to curtail the de-

creased energy expenditure caused by dieting should improve the ability to shed, and maintain the loss of, unwanted body fat for considerable periods of time. Furthermore, thermogenically induced energy expenditure is not inhibited by caloric restriction like many other energy-consuming processes that are turned down by the previously mentioned homeostatic mechanisms. This, of course, means that no matter how hard you diet, capsaicin will still boost energy expenditure. In fact, the more severe the diet, the more likely you are to benefit from capsaicin— as greater levels of caloric restriction more potently diminish metabolic rate, giving capsaicin a greater opportunity to supplement this deficiency in energy expenditure.

### **REIGNITE A SLUGGISH METABOLISM**

In order to see if capsaicin could, in fact, diminish the reduced energy expenditure brought on by dieting, a recent study by Janssens et al.<sup>2</sup> looked at the influence that capsaicin had on energy expenditure levels in test subjects who consumed 75 percent of their normal caloric intake, with or without capsaicin. The results of the study showed that the group taking capsaicin had an effective negative energy balance of 20.5 percent, meaning they had a reduction in energy expenditure of 4.5 percent, while the group that did not consume capsaicin showed an effective negative energy balance of 19.2 percent, or a reduced energy expenditure of 5.8 percent. So, the group consuming capsaicin had a 1.3 percent higher energy expenditure relative to the control group, clearly demonstrating that capsaicin increased energy expenditure

while dieting. In addition, the group taking capsaicin also showed a significant increase in fat oxidation, while there was no significant increase in fat oxidation in the control group. The increased fat burning induced by capsaicin will likely enhance body composition by promoting a reduction in fat mass.

This study by Janssens et al. also demonstrated that the effects of capsaicin on energy expenditure and fatty acid oxidation require several days of capsaicin intake, at a dosage of 2.6 milligrams per day. This study clearly showed that energy expenditure and fatty acid oxidation did not increase in the first day, but did increase after a few days of capsaicin intake— and that consuming an amount of capsaicin lower than 2.6 milligrams per day had no influence on energy expenditure or fat burning.

### **ELEVATE TESTOSTERONE WHILE DIETING**

In addition to caloric restriction promoting a sluggish metabolic rate, caloric restriction also has the capacity to reduce testosterone production<sup>3</sup>, which likely contributes to the unwanted loss of muscle mass typically seen while dieting. The reason for this effect has to do, in part, with the low energy levels that come with caloric restriction, which slows down many biochemical processes that are not absolutely essential for survival. Regrettably, one of the non-essential processes turned down while dieting is the production

***Capsaicin can reverse the negative impact that hypocaloric diets have on testosterone production.***





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of testosterone, meaning testosterone levels typically decline after extensive caloric restriction.

Fortunately, there may be a solution to this dieting dilemma, as it has recently been shown that capsaicin can reverse the negative impact that hypocaloric diets have on testosterone production. According to a study by Ilhan et al.<sup>4</sup>, capsaicin accomplishes this by reducing production of the peptide hormone ghrelin, which is normally secreted by an empty stomach to tell the brain to increase hunger and promote food intake. It turns out that ghrelin also inhibits the production of testosterone, meaning that low-caloric diets— that naturally increase production of ghrelin, because the stomach is more likely to be empty— also decrease testosterone production. In fact, this study clearly shows that a dose of capsaicin lowered ghrelin levels in the testosterone-producing cells within the testes of rats, resulting in a large increase in testosterone.

This study also showed, somewhat surprisingly, that capsaicin actually increased serum levels of ghrelin throughout the rest of the body, which would suggest that capsaicin intake would decrease testosterone production— which, as previously mentioned, did not happen in this study. So, in rats, it appears that ghrelin influences testosterone production through an unknown mechanism that may involve the direct regulation of the testosterone-producing cells within the testes. On the other hand, in humans, it seems as if capsaicin has a more systemic effect, as capsaicin intake has been shown to decrease serum ghrelin levels<sup>5</sup> and increase testosterone levels.<sup>6</sup>

In closing, the unique ability of capsaicin to increase energy expenditure and boost testosterone levels while consuming a low-calorie diet makes capsaicin a perfect choice for bodybuilders, especially during pre-contest training, when one is trying to shed as much body fat as possible without losing any muscle mass. Capsaicin also represents a very effective way for the non-bodybuilder to lose weight and keep it off, as many dieters today typically yo-yo back to their original weight, in large part because their metabolic rate becomes so sluggish, which promotes a positive energy balance that brings back those unwanted pounds that were so hard to lose in the first place. ■

For most of Michael Rudolph's career he has been engrossed in the exercise world as either an athlete (he played college football at Hofstra University), personal trainer or as a research scientist (he earned a B.Sc. in Exercise Science at Hofstra University and a Ph.D. in Biochemistry and Molecular Biology from Stony Brook University). After earning his Ph.D., Michael investigated the molecular biology of exercise as a fellow at Harvard Medical School and Columbia University for over eight years. That research contributed seminally to understanding the function of the incredibly important cellular energy sensor AMPK— leading to numerous publications in peer-reviewed journals including the journal *Nature*. Michael is currently a scientist working at the New York Structural Biology Center doing contract work for the Department of Defense on a project involving national security.

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# OMEGA-3 UPDATE

**F**or many years, the fats in our diets were vilified. The politics and misguided policies of the '80s resulted in a fat-free fad where all of the palatable fats in our foods were replaced by sugars. We are now realizing the political and economic follies of our ways. There's a crisis of the metabolic syndrome that includes obesity, hyperlipidemia, hypertension and insulin resistance that now drains our medical systems and tax dollars.

Unfortunately, sports nutritionists still believe that carbohydrates are the driving force behind athletic performance. As a result, the essential nutrients that can really boost our performance are treated with benign neglect by the nutrition policymakers and demonized by the media. The reality is that the essential amino acids from protein and the essential fats are critical to our well-being and lean muscle potential. Despite CNN's attempt to call creatine a steroid, we know that it is essential to bodybuilding.

Just as I have pointed out in previous articles, all macronutrients are not created equal by their calorie content. We learned last month how the branched-chain amino acid leucine is a special "anti-kryptonite" that fights the damaging effects of sugar on our performance, thus making leucine-rich proteins more valuable to the bodybuilder.<sup>5</sup> This month, I would like to point out that among the fats, all fats are not created equal.

It is clear that the omega-3 fatty acids are especially important in our health. Initial interest in the cardiovascular benefits of fish oils was incited by the finding

that Eskimos and other populations that consume diets rich in these fatty acids have extraordinarily low incidences of cardiovascular diseases. The effects of these fatty acids appear to be on many different physiological processes, including a reduction of inflammation, improved blood flow, positive changes in lipid metabolism and the list goes on.<sup>1</sup>

## FISH OILS FOR FAT BURNING

Over the past 30 years, there's been significant interest in the therapeutic potential of fish oils for a variety of inflammatory conditions such as arthritis, inflammatory bowel diseases and asthma in humans. Fish oil, rich in omega-3 polyunsaturated fatty acids (PUFAs), exerts anti-inflammatory and immune-modulatory effects, making them useful as a nutritional combatant to exercise-induced inflammation and immune suppression resulting from intense training. The long-chain omega-3 PUFAs eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) found in fish oil appear to have additional anti-inflammatory properties, primarily through their effects on the neutrophil and macrophage constituents of the inflammatory response. These are white blood cells that attack infections and help rebuild tissues.

New data suggests that the types of macrophages in our fat changes as we go

from lean to fat. Initially, we have healthy macrophages that produce mediators that reduce inflammation and improve the metabolic function of our adipose tissue. As we get fatter, inflammation builds up and unhealthy or "bad" macrophages come in and perpetuate metabolism-crushing inflammation. Since EPA from fish oil is particularly known to have strong anti-inflammatory effects, it was hypothesized by scientists that supplementation with EPA could help limit the damaging effects of bad fat.<sup>2</sup>

Scientists fed mice a high-fat, calorie-rich diet with the goal to make them obese and induce inflammation.<sup>2</sup> In one group of mice, the researchers replaced 15 percent of the fat with EPA to see if it improved their physiologic function. Amazingly, the EPA-treated mice showed significantly reduced bodyweight and adiposity or "fatness," while decreasing the size of fat cells and reducing the amount of inflammation, compared to the high-fat fed controls. Furthermore, when the mice that became fat were given EPA, they reversed their fat cell size and reduced inflammation. Mechanistically, EPA also improved the fat cell's ability to burn fat and utilize oxygen.

## IMPROVED EXERCISE PERFORMANCE

Although some of the literature is conflicting between endurance training and strength training, there appears to be a net beneficial effect to using omega-3 fatty acids from fish oils to improve exercise performance.<sup>1</sup> It appears that the anti-inflammatory effect reduces muscle damage and delayed-onset muscle soreness, and the improved blood flow brings in more nutrients to grow. You must remember, though, that the omega-3 fatty acids used in these studies are the long-chain fatty acids, especially EPA, derived from fish oil. The omega-3 fatty acids from foods like flaxseed oil have to be elongated by enzymes in your body that are very inefficient at doing so. So suck it up, and slurp down some cod liver oil. Just kidding—take the pills ... it's easier.

Because fish oils have such profound effects on our muscle and fat metabolism, a particular area of research interest is the treatment of complications related to aging. As I mentioned last month, our sensitivity to leucine decreases as we age—and thus our ability to maintain and grow muscle becomes more difficult. We must make a concerted effort to eat leucine-rich foods. Furthermore, as

***Fish oil-derived omega-3s cannot only enhance muscle protein synthesis, but can also prevent the catabolic pathways that break muscle down.***



we age, we experience more tissue breakdown and inflammation in our bodies that we can combat with omega-3s. After age 50, we can lose more than one percent of our muscle mass per year, and lose more than two percent of our strength as a result. This even occurs in the diehard exercisers. The result is falling and hip fractures, which can lead to death in 50 percent of those over 80.

Studies on patients wasting away from cancers and inflammatory problems like rheumatoid arthritis have demonstrated that fish oil supplementation can significantly reduce the decline in muscle mass seen from these conditions.<sup>3</sup> Thus, doctors decided to experiment with feeding the elderly Lovaza, a prescribed fish oil supplement containing 1.86 grams of EPA and 1.5 grams of DHA, and observed their muscle mass and function over a six-month period. The amount of fish oil provided was equivalent to the amount one might find in seven to 14 ounces of salmon. Amazingly, this simple intervention significantly increased muscle mass and strength in this population of 70-year-olds. Laboratory data supports that fish oil-derived omega-3s cannot only enhance muscle protein synthesis, but can also prevent the catabolic pathways that break muscle down.<sup>3</sup> The authors reported that although their fish oil intervention wasn't quite as effective as a resistance-training routine, it was at least equally if not more effective than results achieved from testosterone, growth hormone and DHEA treatment studies.

## MUSCLE GROWTH AND METABOLISM

Another omega-3 science update in 2015 suggests that omega-3 supplementation may express some of its benefit through modulation of insulin-like growth factor-1 (IGF-1).<sup>4</sup> IGF-1 is a protein hormone that travels in the bloodstream, bound to other proteins called IGF-binding proteins (IGFBP). When released by these proteins, the IGF-1 can exert its effects on muscle growth and metabolism. IGF-1 is mainly released by the liver in response to growth hormone, but can also be released by other tissues like muscle, to act locally.

Patients with cardiovascular disease have chronically low levels of IGF-1. Statistics suggest that reductions in serum levels of IGF-1 correlate to increased risk of heart failure and mortality from heart disease. Since omega-3 fish oils are capable of limiting mortality in heart disease, scientists explored whether omega-3 supplementation could be having an effect on the IGF-1.<sup>4</sup> They performed a randomized, placebo-controlled trial of eight weeks where they supplemented subjects with 720 milligrams of EPA and 480 milligrams of DHA per day. Amazingly, the omega-3 supplementation not only improved the low IGF-1 levels

in these patients with cardiovascular disease, but it also increased the bioavailability of the IGFBP.<sup>3</sup>

Now, although omega-3 supplementation was able to increase IGF-1 in a chronically lowered state, this data does not suggest that healthy individuals with normal IGF-1 levels will experience a rise in IGF-1 above normal. However, in chronically stressed states like overtraining and lack of sleep, your IGF-1 levels may be too low to build the muscle you want. Those who are training with great intensity may also have exceedingly high levels of inflammation in their bodies, which could lead to metabolic dysfunction in both muscle and adipose tissue. This dysfunction could lead to a failure to build muscle and mobilize fat for burning. According to the studies presented in this article, omega-3s could help you to restore normal physiology to this bug-laden system.

I will admit that I am a huge proponent of supplementing your body with the essentials. Whether it's a multivitamin, leucine or a conditionally essential nutrient like creatine, supplements help you achieve your training goals. Your body can make creatine—however, if you are a bodybuilder, you need to get more from your diet. If you aren't eating at least one pound of fish per day, you need to get some extra fish oil through a supplement. I used fish oil at two to four grams per day throughout my gymnastics and bodybuilding careers. Now I use fish oil to keep the muscle I built, reduce the joint pain I caused and keep my heart healthy for the long haul. Besides, with my work schedule and stress, I need the most IGF-1 boost that I can get. ■

Dr. Victor Prisk is a board certified orthopaedic surgeon and IFBB professional bodybuilder in Pittsburgh, PA. Dr. Prisk is an active member of the GNC Medical Advisory Board and creator of the "G.A.I.N. Plan." He is an NCAA All-American gymnast, champion swing dancer and NPC Welterweight National Champion.

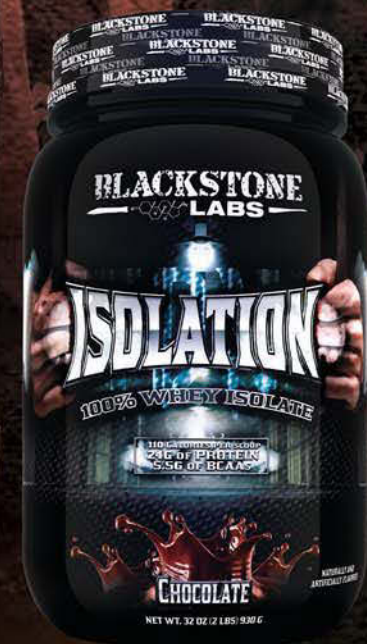
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A photograph of a muscular man with blonde hair and tattoos on his arms, wearing a bright green tank top. He is performing a pull-up on a bar in a gym, with his arms fully extended and his body tensed. The background shows other gym equipment and people.

## INCREASE MUSCLE MASS WITH LACTATE

If you've been in the weight room long enough, then you've most certainly felt the burning sensation caused, in part, by the accumulation of lactic acid within the muscle during intense weight training. The buildup of lactic acid occurs because the contracting muscle rapidly and anaerobically burns glucose for energy, which ultimately converts the glucose into lactic acid.

In addition to causing a burning sensation, lactic acid accumulation also triggers an anabolic-hormonal response, which contributes to adaptations associated with weight training such as muscle growth and strength. More specifically, lactic acid causes an increase in the two most prominent hormones that stimulate muscle growth, growth hormone (GH) and testosterone. Growth hormone triggers greater muscle growth primarily by stimulating the liver to produce insulin-like growth factor 1 (IGF-1), which itself potently stimulates muscle growth by increasing protein synthesis within the muscle cell.<sup>1</sup> Testosterone drives muscle growth by stimulating muscle protein synthesis and inhibiting muscle

protein degradation.<sup>2</sup>

So, you might be thinking, what's the big deal? You've likely heard this all before, about lactic acid causing the "burn" and triggering muscle growth. Well, some recent scientific work has discovered that lactic acid, or more specifically lactate, which is simply lactic acid with one hydrogen atom removed, triggers muscle growth by stimulating a certain cellular-signaling pathway in the body— and more importantly, the oral consumption of lactate can actually activate this pathway, leading to considerable muscle growth.<sup>3</sup> Therefore, you don't have to exclusively rely on lactic acid production from intense muscular contraction to drive muscle growth— you can actually contribute to this muscle-enhancing effect by supplementing with lactate. In addition, this recent scientific work has demonstrated that other well-known performance-enhancing compounds, such as caffeine— that activate the same cellular-signaling pathway— function synergistically when co-ingested with lactate, providing an even greater impact on muscle growth.

### STRONG MUSCLE-BUILDING RESPONSE BY INDUCING cAMP PRODUCTION

There is a substantial amount of evidence showing that intense resistance training elicits a significant increase in circulating testosterone.<sup>4,5</sup> It has also been shown that this increase in testosterone results, in part, from the positive influence lactate has on cyclic AMP (cAMP) production within the testosterone-producing cells of the testes.<sup>6</sup> In fact, researchers have shown that increasing concentrations of lactic acid caused a greater rise in testosterone than the natural testosterone-boosting luteinizing hormone (LH) did, demonstrating the potency at which lactate can induce testosterone production<sup>7</sup>, as LH is well known as a strong inducer of testosterone.

The cAMP molecule is known within the biochemical lexicon as a "second messenger" because it literally functions as a messenger passing the signal from one part of the cell to another— ultimately generating its biochemical influence which, in this case, is increased testosterone production. More specifically, the increase in cAMP, triggered by lactate, is a signal to crank up production of the steroidogenic acute regulatory protein (StAR)<sup>8</sup>, which has the capacity to directly deliver cholesterol to the testosterone-producing enzyme P450. The greater delivery of cholesterol to P450 triggers this enzyme to initiate the catalytic conversion of cholesterol into testosterone, ultimately boosting testosterone production.<sup>9,10</sup> The cAMP molecule also promotes several other muscle-building effects, including increased muscle protein levels from mTOR activation<sup>11</sup> and the conversion of satellite cells within muscle tissue into newly formed muscle cells.<sup>12</sup>

### CAFFEINE PREVENTS THE BREAKDOWN OF cAMP

Caffeine is best known as the active ingredient in coffee that stimulates the central nervous system, impeding drowsiness and restoring alertness. Yet, caffeine also possesses the ability to enhance exercise performance by activating a number of cellular-signaling cascades in different cells, triggering diverse effects. Some of these include the breakdown of fat within the fat cell<sup>13</sup> and glycogen within muscle cell for energy production.<sup>14</sup> Altogether, these processes enhance exercise performance by increasing the energy supply to working muscles.

The ability of caffeine to boost energy levels by burning fat and glycogen is directly caused by its capacity to increase cAMP levels. However, caffeine increases cAMP levels in a different manner than lactate, as caffeine actually inhibits the breakdown of cAMP to increase cAMP levels instead of increasing production of cAMP like lactate does.



## LACTATE AND CAFFEINE SYNERGISTICALLY BOOST CAMP LEVELS FOR SUPERIOR MUSCLE GROWTH

The ability of caffeine to prevent the breakdown of cAMP, while lactate increases the production of cAMP, suggests that the simultaneous intake of lactate with caffeine should cause an increase in cyclic AMP concentrations that is greater than that caused by consuming either caffeine or lactate alone. This, of course, would lead to greater levels of testosterone production, fostering superior increases in muscle growth.

In order to verify the potential anabolic influence of a lactate-caffeine cocktail, a study by Oishi et al.<sup>3</sup> compared the impact of orally consuming lactate and caffeine on muscle growth in rats. The results of the study clearly showed that the group ingesting lactate and caffeine experienced a greater increase in muscle growth relative to the two control groups, which did not consume lactate or caffeine, and either exercised or were sedentary. Interestingly, they also demonstrated a significant increase in expression levels of two key muscle-building proteins, myogenin and follistatin. Myogenin is a transcription factor that turns on several

genes involved in the coordination of muscle growth, while follistatin is a protein that directly inhibits the muscle-depleting molecule myostatin. Furthermore, the exercise group given lactate and caffeine also showed a significant increase in the total DNA content within their muscle, compared to the control group—indicating that the DNA-containing satellite cells within this muscle tissue had undergone cellular division, increasing the number of satellite cells and effectively increasing DNA levels. Yet, more importantly, the newly created satellite cells ultimately formed new muscle cells, increasing muscle mass.

This study also showed that exposing muscle cells in a test tube to a mixture of lactate and caffeine triggered mTOR activity compared to the control experiment, which was only exposed to lactate. What's interesting is that activation of myogenin, follistatin and mTOR, along with the conversion of satellite cells into new muscle cells, has also been shown to occur in other studies by directly increasing cAMP<sup>15,16,11,12</sup>, indicating that it is the increase in cAMP caused by lactate and caffeine consumption that triggers these powerful anabolic signals, generating substantial gains in muscle mass. ■

For most of Michael Rudolph's career he has been engrossed in the exercise world as either an athlete (he played college football at Hofstra University), personal trainer or as a research scientist (he earned a B.Sc. in Exercise Science at Hofstra University and a Ph.D. in Biochemistry and Molecular Biology from Stony Brook University). After earning his Ph.D., Michael investigated the molecular biology of exercise as a fellow at Harvard Medical School and Columbia University for over eight years. That research contributed seminally to understanding the function of the incredibly important cellular energy sensor AMPK—leading to numerous publications in peer-reviewed journals including the journal *Nature*. Michael is currently a scientist working at the New York Structural Biology Center doing contract work for the Department of Defense on a project involving national security.

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# SPLIT- vs FULL-BODY ROUTINES: WHICH IS BEST FOR MAXIMAL MUSCLE GROWTH?

Going back to the early days of bodybuilding, competitors routinely trained using full-body routines. Steve Reeves was a huge proponent of this style of programming. He worked all the major muscle groups during each session, training three non-consecutive days per week. He thought that frequently stimulating muscles throughout the week was the best way to pack on slabs of muscle without overtraining. A majority of the bodybuilders from this era, including Reg Park, Vince Gironda and John Grimek, also built their championship physiques using full-body routines; it was the norm rather than the exception.

By the 1960s, training philosophies began to change. Full-body routines gave way to training splits, where the goal is to blitz a muscle using multiple sets and exercises, and then afford the muscle with as much as a week's recovery before it's directly trained again.

Today, splits continue to rule the realm of bodybuilding. A recent survey of competitive bodybuilders found that every single respondent trained with a split routine.<sup>2</sup> Every one! Further, more than two-thirds of those interviewed reported training each muscle group only once per week, and none worked a given muscle more than twice weekly.


## MORE TRAINING VOLUME PER MUSCLE GROUP

The theoretical benefit of a split routine is that it allows total weekly training volume per muscle group to be increased, while providing muscles greater recovery for growth.<sup>3</sup> In addition, blasting a muscle with a high training volume in a given session heightens intramuscular metabolic stress<sup>1</sup>, which in turn is believed to enhance the hypertrophic response.<sup>9</sup> The combination of these factors are thought to ultimately lead to greater long-term muscular gains.

Although a case can be made for using either full- or split-body routines to build muscle, an evidence-based opinion can only be formed by first evaluating the results of controlled research. Given that training frequency is one of the most important training variables, you'd think there'd be a ton of studies conducted on the topic, right?

Wrong!

Until recently, only one study actually compared the muscle-building effects of training muscles one versus three days per week.<sup>7</sup> Subjects either performed three sets per exercise in a single weekly session, or one set per exercise spread out over three weekly sessions for 12 weeks. At the completion of the study period, results showed greater increases in lean body mass for the three-day-a-week group, indicating



**Research shows a benefit to training muscles frequently throughout the course of a week.**



a benefit of training muscles more frequently. While the study is intriguing, there are some inherent limitations that hinder the ability to draw practical conclusions. For one, subjects performed only three sets per muscle group per week—far below what most serious bodybuilders typically include in their training programs. For another, muscle mass measures were assessed by the skinfold technique, which lacks precision in determining true changes in hypertrophy over time. The applicability of the study to serious lifters seeking to maximize muscle building is therefore limited.

## 'BRO SPLITS' VS. FULL-BODY ROUTINES

To gain clarity on the topic, my lab recently carried out a controlled study that compared muscular adaptations in a typical "bro split" versus a full-body routine in well-trained lifters.<sup>11</sup> Both routines comprised 21 different exercises that targeted the major muscle groups using multi-set routines. Those in the split routine performed chest and back on day one, lower body on day two and shoulders and arms on day three. Alternatively, the full-body routine consisted of performing one exercise for all the major muscle groups during each session. Training was carried out three days per week for eight weeks. Total volume was equated between routines so that any differences in muscle development could be attributed directly to the effects of training frequency. Changes in muscle size were assessed by ultrasound to provide direct hypertrophic measurements. Subjects were college-aged men with an average of more than four years of lifting experience, thus ruling out any issues from the "newbie effect."

The surprising results challenge current training practices.

Those performing the full-body routine experienced significantly greater increases in biceps growth compared to split-body training (6.5% versus 4.4%, respectively). Although differences in the other muscles analyzed were not statistically different, the increases favored the full-body routine for both the triceps (8.0 versus 5.0%, respectively) and the quads (6.7 versus 2.1%, respectively). Moreover, determination of effect size—a statistical gauge of the meaningfulness of results—showed a clear advantage for the full-body routine in all of the muscles we measured. These findings suggest a benefit to training a muscle more often over the course of a week.

## TIME TO DITCH THE SPLIT?

So, what gives? Do all of today's competitive bodybuilders have it wrong? Should we revert back to the old-school training practices of Steve Reeves and company?

There is a logical basis to training muscles more frequently each

week. This is consistent with the fact that muscle size is regulated by the dynamic balance between muscle protein synthesis (MPS) and protein breakdown.<sup>10</sup> Simply stated, when MPS is greater than breakdown, there is a net accumulation of skeletal muscle mass; the more you can maintain high levels of MPS over time, the greater your gains. Research shows that the time course of muscle protein synthesis (MPS) lasts about 48 hours or so following a lifting session.<sup>6</sup> It's therefore reasonable to conclude that training a muscle every few days would keep MPS consistently elevated, and thus have a positive effect on muscular development.

Before you ditch the split, however, it's important to consider a couple of things. First and foremost is the novelty factor. Prior to training, we conducted pre-study interviews about training history. During these interviews, 16 of the 19 subjects reported regularly employing a split routine, with each muscle group trained once per week. Research indicates that simply changing program variables so that a new stimulus is provided can enhance muscular adaptations.<sup>4</sup> This raises the possibility that those in the full-body training group benefited from the unaccustomed stimulus of training muscles with a greater weekly frequency.

## TRAIN MUSCLES MORE FREQUENTLY TO MAXIMIZE GROWTH

Perhaps more importantly, the study needs to be taken in the context that volume was equated between groups. A primary benefit to training with a split routine is that it allows more volume to be packed into workouts over the course of a week. Assuming 48 hours is afforded between training a given muscle group—a generally accepted tenet—then full-body training limits you to three weekly sessions. Alternatively, splitting the routine lets you up the frequency of sessions per week, and thus allows you

to achieve more volume per muscle, per session. Given that higher training volumes are strongly associated with greater muscle growth<sup>5,8</sup>, the potential value of training splits should not be discounted.

Bottom line: Research shows a benefit to training muscles frequently throughout the course of a week. Although evidence is somewhat limited, it would appear that at least twice-weekly stimulation of a given muscle is beneficial to maximize growth.<sup>12</sup> This can be accomplished with an upper body/lower body split carried out four days per week (i.e., two days on/one day off, two days on/two days off) or a three-way split (i.e., push/pull/legs) performed six days per week (i.e., three days on/one day off). It's also possible that periodizing training frequencies might provide a means to maintain the novelty of the training stimulus. Accordingly, consider integrating full-body workouts into your programming over the course of a training cycle to enhance the hypertrophic response. ■

***Do all of today's competitive bodybuilders have it wrong? Should we revert back to the old-school training practices of Steve Reeves and company?***

Brad Schoenfeld, Ph.D., CSCS, FNSCA, is widely regarded as one of the leading authorities on training for muscle development and fat loss. He has published over 60 peer-reviewed studies on various exercise- and nutrition-related topics. He is also the author of the best-selling book, *The M.A.X. Muscle Plan*, and runs a popular website and blog at [www.lookgreatnaked.com](http://www.lookgreatnaked.com).

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# MHP PRESENTS: CRE5 ENERGY



## THE LEGACY OF CREATINE

When creatine first came on the scene over two decades ago, it was a superstar right away. You have to remember that back then, the supplements available were nothing compared to what we have now. Yesterday's supplements had little scientific backing. Creatine was, and still is, the single most-studied compound in sports supplement history. While many companies rely on the old standby of creatine monohydrate, MHP has decided once again to take things to a whole new level. Their recent launch of CRE5 ENERGY is going to blow the doors off anything you have ever seen in this category!

## UNLIKE ANYTHING YOU HAVE EVER SEEN

If there is any single product that is currently available that will revolutionize creatine supplementation, this is the one to make it happen. CRE5 ENERGY is a high-performance multisource creatine complex. While other companies rely on one or even just two forms of creatine, CRE5 ENERGY is loaded with five different sources. This is to provide you with all the benefits that each form has to offer your performance and physique. Let's look at this breakdown to see exactly what I am talking about.

## PERFORMANCE BENEFITS

CRE5'S SUPER CREATINE COMPLEX	UNIQUE BENEFITS
Creatine Monohydrate	Creatine monohydrate is used to describe creatine with one molecule of water added. Monohydrate is the most researched creatine, shown to increase strength, muscle mass and power.
Creatine Alpha-Amino Butyrate (AAB)	AAB is an analogue of butyric acid, which is produced by amination of ketone acids. Pre-clinical animal studies have demonstrated impressive results with this ingredient, showing up to a five-fold increase in the synthesis of hemoglobin (oxygen carrying molecules) and red blood cells. This is critical, as multiple studies have shown a linear relationship between hemoglobin levels and exercise performance, demonstrating that a small drop in hemoglobin of just ~11% can decrease exercise performance by as much as 40%. Conversely, raising hemoglobin above normal levels can substantially enhance exercise performance.
Creatine-HCl	Creatine bound to HCl (hydrochloric acid) has been shown to increase creatine solubility and plasma creatine levels, promoting greater muscle saturation.
Creatine MagnaPower® (Creatine Magnesium Chelate)	MagnaPower® is creatine bound to magnesium chelate, and is shown to promote creatine muscle saturation and enhance muscle cell hydration and pumps.
Creatine Alpha-Keto-glutarate (AKG)	AKG is a keto acid – amino acid metabolite – that acts as a nitrogen/ammonia “scavenger,” thereby helping to regulate a healthy pH. Supplementation with AKG can support muscle anabolism, power output, strength and endurance while also speeding recovery between workouts, allowing you to train harder and more frequently.

## 5 DIFFERENT FORMS OF CREATINE FOR MAXIMUM RESULTS

- Creatine MagnaPower is included because of its ability to be transported through an alternative pathway that is different than the pathway used by creatine monohydrate. This has been shown to accelerate creatine absorption, all the while decreasing creatine breakdown.
- Creatine HCL was added to increase creatine solubility.
- Creatine monohydrate was not forgotten, as it is the time-tested champion.
- Creatine-AKG and Creatine-AAB have been introduced to this formula. These two innovative creatine complexes not only contain all the benefits of monohydrate, but also maximize blood flow to hungry muscles. They literally gorge nutrient and oxygen delivery to hardworking muscles, with laser precision. This means you can expect mind-blowing pumps that will have you swole like never before

## IT'S NOT OVER YET

Now, if you thought that harnessing the power of five separate creatine sources was all MHP had to offer, think again. Their unique research and development team included a synergistic energy blend containing caffeine, theanine and citicoline. This combination will provide you with amazing all-day energy. It will also enhance memory, concentration and optimize your performance in the gym. If you want unlimited energy but do not like the feeling of being cracked-out, then CRE5 ENERGY is ideal. It provides just the right amount of stimulants in pristine dosing patterns, to give you a synergistic effect that is truly amazing. For those of you who may be training at night, CRE5 is also available without stimulants.

## MY PERSONAL EXPERIENCE WITH CRE5 ENERGY

The energy complex in this formula is bang on. I noticed an immediate surge of energy when taken before my training session, and the feeling lasted for hours— even after my workout was over. I didn't feel wired or jittery, and didn't suffer the dreaded crash later in the day. Just the right dosing pattern had me feeling euphoric every time I used it.

When it came to my performance in the gym, my reps increased dramatically on all my staple exercises. My sets of five reps quickly turned into sets of eight reps, with ease. Plus, I could do more sets with a major increase in overall volume, without feeling wiped out. I even noticed that I recovered better between my workouts, even when performing more sets and reps than I normally did.

The pumps were awesome, plain and simple. Hell, my arms would feel pumped— and this happened on leg days. There is nothing I love more than a good pump in the gym, and this stuff even put pre-workout formulas to shame. My muscles were always full and tight and yet I had no water retention, which is a problem with some other products.

When I would train later in the day due to my hectic work schedule, I would use the non-stimulant version known as CRE5. If I started my workout at 9:00 p.m., I wouldn't be up all night. This gives you the best of both worlds, no matter when you decide to train.

If your current creatine product is a dated remnant from the '90s, it's time to use the best. CRE5 ENERGY will leave all other creatine products obsolete! ■

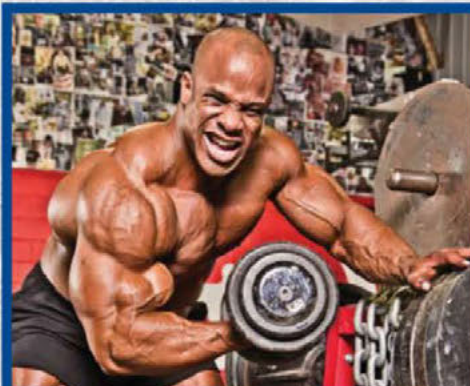
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## APS PRESENTS: SHRED AND SLAM STACK

### UNRELENTING POWERHOUSE TRIFECTA

During my time in the industry, I have reviewed more products than I can even count. Yes, I know that all the supplement junkies out there are burning with envy just reading this. I have been asked thousands upon thousands of questions from readers all over the world. One that I get asked over and over is what would be a basic but effective stack to help build muscle and burn fat at the same time. Well, this month I am going to introduce to you a stack that is far from basic, but packs a punch that Mike Tyson would be jealous of. This is no other than the Shred and Slam stack from **Advanced Performance Supplements (APS)**. It is comprised of three amazing formulations: their flagship protein formula, Isomorph 28, their pre-workout sensation, Mesomorph and their fat-burning incinerator known as Phenadrine.

### WELCOME BACK TO CIVILIZATION

Now, if you have not heard of APS, then you have either been imprisoned in a Siberian gulag or have just awoken from a lengthy hibernation. Either way, welcome back to civilization because boy, do I have a stack for you.

If you are one of those guys who goes to the gym to socialize more than you train, this stack is not for you. But if you go there with balls-to-the-wall intensity, then you have just met the stack of your dreams that will work just as hard as you do. Let's take a look at the meat-and-potatoes of this trifecta, and I will let you in on a stack that will have you begging for more.



### ONE HELL OF A STACK

So as you can see here, APS has put together one of the most potent stacks in existence. Mesomorph is all the talk on numerous bodybuilding forums, being hailed as "The most potent pre-workout ever." If you are tired of your current formula that seems to have faded like a pair of jeans, now is the time to step up to the plate with one that won't disappoint. Feeding your muscles with the highest-quality protein is a must. Isomorph 28 is one of the purest and cleanest whey protein isolates you will ever experience. I have tried all the flavors, and they taste more like a milkshake than a protein drink. They are that tasty! When it comes to getting ripped, Phenadrine has all your bases covered with a formula that makes others look like a joke. If you are looking to maximize your performance and dial-in that shredded, rock-hard physique, APS is just the company to make it happen! ■

For more information, visit [www.apsnutrition.com](http://www.apsnutrition.com).

#### MESOMORPH

- One of the fiercest pre-workouts ever created.
- Loaded to the max with beta-alanine, L-citrulline and arginine for unrelenting muscle pumps and endurance.
- Powered with creatine nitrate, di-creatine malate and L-taurine for the ultimate cell volumization mix that has to be felt to truly understand what I am talking about.
- Caffeine, glucuronolactone, methylxanthine anhydrous and Geranaburn will give you dialed-in focus and energy like a freight train coming out of the tracks.
- The ultimate pre-workout amplifier, making other formulas pale in comparison.

#### ISOMORPH 28

- If you are looking for the ultimate whey protein isolate in terms of quality ... this is IT!
- Manufactured in **Advanced Performance Supplements'** own GMP facility, while most other companies are just resellers.

- Contains extremely small protein molecules, that are literally 18 times smaller than the proteins from almost every other formula on store shelves. This makes absorption much more efficient, helping you build muscle faster while requiring little work from your digestive system.
- Contains 28 grams of the highest-quality protein in each scoop.
- Tastes amazing and comes in eight mouth-watering flavors.

#### PHENADRINE

- If you are looking to get paper-thin skin and truly get peeled, this formula has no comparison.
- This matrix consists of N-acetyl-L-tyrosine, caffeine, Acacia rigidula and the favorite 1,3-dimethylamylamine, also known as DMAA.
- If you thought your favorite ingredient was gone, think again— Phenadrine will make you a believer in fat burners again.
- This formula is not for the weak, as it will burn unwanted fat like a blowtorch melts butter!





# MESOMORPH™

ULTIMATE PRE-WORKOUT COMPLEX



SUPERCHARGED  
ENERGY FORMULA WITH DMAA



ULTIMATE PREWORKOUT  
COMPLEX WITH CREATINE NITRATE



GREATER MUSCLE GAINS &  
ENHANCED ATHLETIC PERFORMANCE



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## Body Fortress:

# SUPER ADVANCED 100% PROTEIN ISOLATE

### A MUST FOR EVERY BODYBUILDER

In the world of bodybuilding supplementation, there are really very few supplements that are considered essential. While we may love the stimulant rage that our favorite pre-workout formula produces before we head off to the gym, or the way creatine helps you get an extra few reps on every set, they still are not considered essential. But when it comes to your protein powder, it's a whole other ball game.

### LIVING IN THE REAL WORLD

Getting in six solid food meals a day can be tiresome, even for pro bodybuilders who have dedicated their lives to building the perfect physique. So, if it can be tiresome for them, then how about the average Joe looking to get jacked? On top of that, since the majority of the population has to work for a living, then eating every two hours like clockwork can be impossible. When you are in a board meeting with your CEO, I don't think he would enjoy you whipping out your Tupperware container of hard-boiled eggs and munching on them (meanwhile, stinking up the place) while he's talking to you about the current marketing promotions for their latest release.

Even with deadlines and the insanity of work, in most cases it's still quite easy to mix up a shake and down it in less than a minute. This is why, in my opinion, protein shakes are a must-have supplement for all bodybuilders. They allow you to keep your muscles fed, even when the world around you cannot understand your insatiable love for building muscle.

### INNOVATION AND BEYOND

So now that we know that protein supplementation is a must, where do we go from here? Every time you go to the local supplement store, there are more shelves of protein than anything else. So which one is going to provide you with the right formula for muscle gains, while not breaking the bank? The answer is Body Fortress, newest launch, Super Advanced 100% Protein Isolate. Now, you may be asking, what makes this formula so special? Or, why would I spend my hard-earned money on this protein while there are many other brands that seem to dazzle the eye with hype and slogans? Let's put this formula under the microscope to see what it's all about, and why I personally think it is one of the best in the business.

### SUPER ADVANCED 100% PROTEIN ISOLATE

While other formulas contain around 40 grams of protein per serving,

Super Advanced 100% Protein Isolate provides a whopping 60 grams of protein. And some companies provide very few grams of *pure* whey isolate per container, while loading their formulas with low-grade, cheap whey concentrate. This shady move allows unscrupulous companies to include "isolate" on the label, while giving you just a sprinkle. That's not the case with Super Advanced 100% Protein Isolate. And while some companies may provide you with a pure whey isolate, Body Fortress takes it one step further to provide you with results based on science.

By providing a mix of three different types of isolated protein, Body Fortress has created a vastly superior formula. Their five-star formula is a mix of whey isolate, soy isolate and milk isolate, providing you with a combination that can't be beat. This

provides a fast, medium and slow release of important amino acids to hardworking muscles for hours after you consume your shake. This is needed to maintain your body in a positive nitrogen balance, and to keep away the catabolic monster just looking to ravage hard-earned muscle.

With Body Fortress' state-of-the-art manufacturing process, carbs, cholesterol, lactose and fats have been virtually eliminated. To make the formula even better, each serving contains 2.5 grams of betaine, to further enhance muscle growth like never before.

While whey isolate is good to take right after your workout because it is fast acting, the reality is that most bodybuilders drink at least two to three shakes per day. Not a problem—this revolutionary formula can be used any time of the day, making it the most versatile protein supplement ever created!

### THE BEST BANG FOR YOUR BUCK

Body Fortress dialed-in this formula to provide bodybuilders with a science-based matrix to provide what we truly need. The taste is out of this world, which is something I cannot say about many of the other pure isolate formulas on the market. In fact, not only is this an amazing combination of the best protein sources, all in one container, but it is actually more cost effective than many other formulas in the upper echelon of protein supplements. So, if you are looking to build muscle and save money at the same time, then Super Advanced 100% Protein Isolate is just what your body and wallet have been craving! ■

For more information, visit [www.bodyfortress.com](http://www.bodyfortress.com).

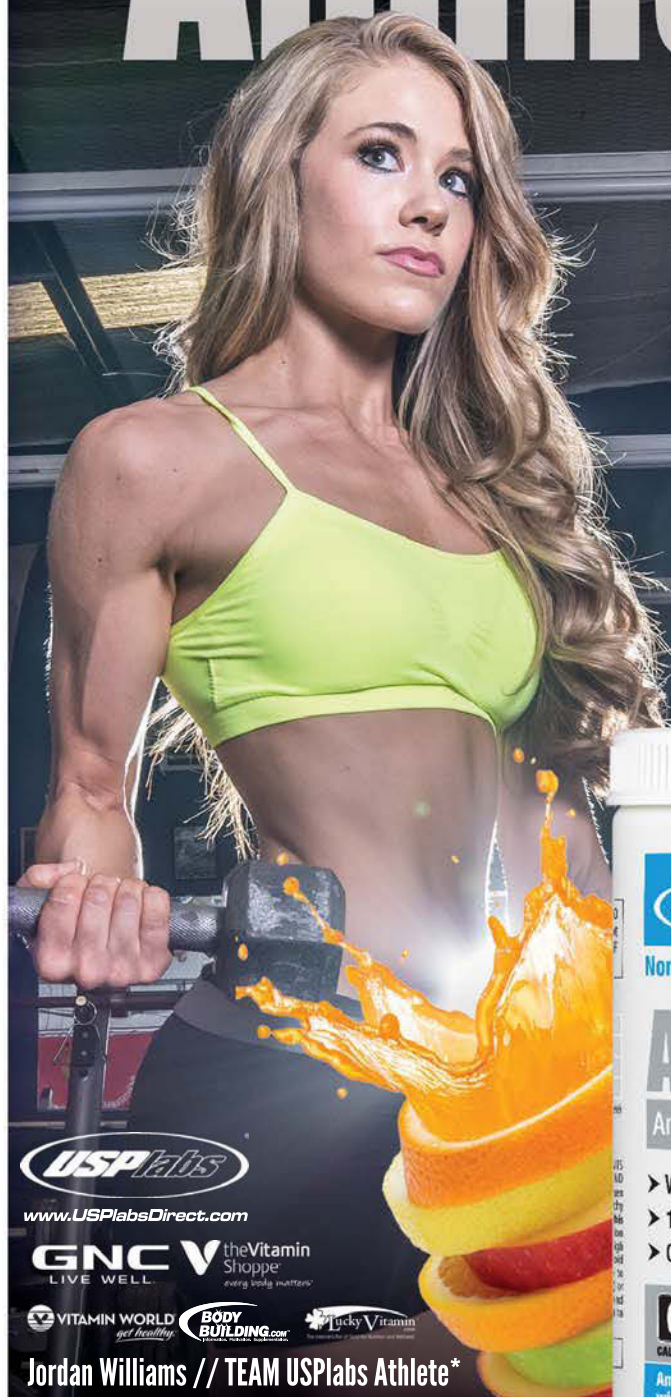




# AMINOS. ENERGY. FOCUS.†

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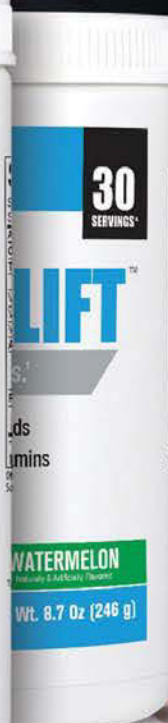
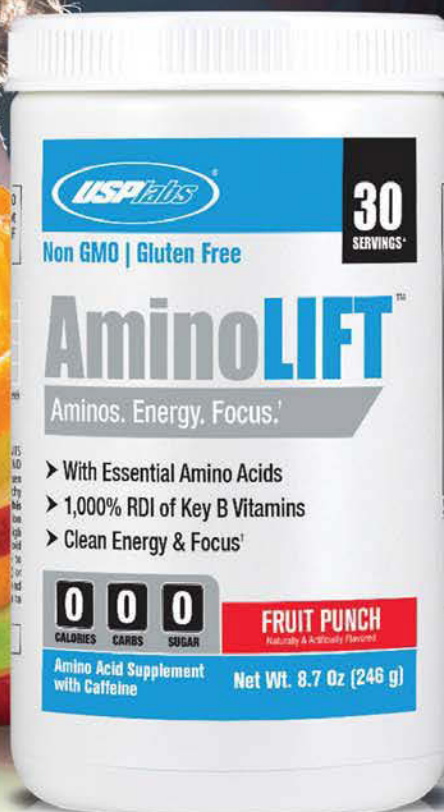
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Jordan Williams // TEAM USPlabs Athlete\*



† These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

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## PROLAB PRESENTS:

# N-LARGE3



## N-LARGE3 *The Ultimate Mass Matrix for Gains You Can See and Feel!*

- Build freakish mass with a formula that is time tested
- Contains 600 high-quality calories to fuel muscle growth
- Contains 45 grams of protein, to stretch your sleeves like no other formula
- Helps recovery from your intense training sessions
- Loaded to the brim with anabolic amino acids, so you grow like a weed
- Comes in three delicious mouth-watering flavors

### A HARDGAINER'S DREAM COME TRUE

Packing on muscle when you are a hardgainer is no easy task. This is a common problem that many ectomorphs have to deal with in their quest for getting jacked. Simply going to the gym and eating your three square meals is not going to cut it, that's for sure. To make matters worse, many hardgainers have to deal with a paltry appetite, which only compounds the problem even more. One thing I tell my nutrition clients is that you can always drink more calories than you can eat. In fact, over the last decade I have recommended Prolab's N-Large formulation more times than I can count. The reason why I have done so, time and time again, is because it is a top-of-the-line product that gets the job done—with even the most difficult of clientele looking to gain quality mass.

### IT JUST KEEPS GETTING BETTER

Like I mentioned earlier, I have been a fan of this series for more than a decade, going back to the original N-Large. As good as the first version was, Prolab's research and development team wanted to make it even better. With their release of N-Large3, you can bet your bottom dollar that a skinny body will be a thing of the past. While you may be struggling to gain the quality weight that you want, with N-Large3 in your corner, you no longer have to worry about working your ass off in the gym, only to see nothing changing in the mirror.

### A LOOK INSIDE THE MASS CREATOR

This formula represents the ultimate mass-gaining advantage to those who struggle, day in and day out, and still can't gain a pound. This unique protein blend was selected to provide you with an extended amino acid flow to hardworking muscles in not one, but three stages. Yes, you heard that right. This means that your muscles are being fed when they need it most—and for hardgainers, that is all day long.

N-Large3 packs a muscle-blasting 45 grams of protein per serving, to make sure you're building muscle like a tank. The powerhouse formula will help keep you in an anabolic state from morning to night. The protein rush of N-Large3 includes:

- Whey isolate, to give your muscles that initial hard and quick blast that they need.
- Whey concentrate, to support and rebuild the base that whey isolate lays the groundwork for.
- High-quality micellar casein, which is one of

my favorite sources of protein. This slow-releasing protein will provide a potent matrix of amino acids for hours after consumption, to feed your starving muscles.

### THAT'S NOT ALL, FOLKS!

If you thought that was it, hold on ... because I just got started. N-Large3 provides you with 600 nutrient-dense calories per serving, to help you reach those caloric needs that are a must if you are looking to maximize gains in the gym. This is ideal for those with super-fast metabolic rates who seem to burn up everything in sight. Without enough daily calories, you will be just spinning your wheels with no gains whatsoever.

N-Large3 also provides 60 grams of glycogen-replenishing carbohydrates that are needed, especially post-workout, to help restore and rebuild what you just burned with your intense training session. This long-lasting energy source composed of slow-burning carbohydrates will help reduce muscle catabolism, which is one of the main reasons that many hardgainers never get ahead.

The innovative formula is well rounded with energy-rich lipids, to provide your body with these essential fats needed to help stimulate the mass-building process. The addition of MCT oil is important, due to its ability to sustain energy levels and to preserve stored muscle glycogen. It also protects critical amino acids from being utilized and taken from lean muscle tissue. When you are trying to get big, this is the last thing you want happening!

### MASS WITH CLASS

If you are looking to put on quality size, then N-Large3 is the formula that has been created just for you. While other bargain-basement gainers on the market are loaded with inferior ingredients, N-Large3 provides you with everything your body craves to unleash freaky muscle growth.

While other weight-gain formulas have come and gone over the years, the one true formula to stand the test of time is none other than N-Large3. So stop wasting your time in the gym, and throwing away your money on products that fail to get the job done. When it's time to pack on muscle in a hurry, then N-Large3 is just what you need to make it happen!

For more information, visit [www.prolab.com](http://www.prolab.com). ■



# SHRED

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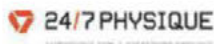


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**CHEST**

Incline  
2 wa  
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Incl  
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De  
3

Team BSN Athlete  
**Dallas McCarver**  
IFBB PROFESSIONAL BODYBUILDER



# TRAINING SCHEDULE

**T**

**REST**

Bench Press  
Arm-up sets,  
3 x 8-12

Incline Dumbbell Flys  
3 x 10-12

Dumbbell Bench Press  
3 x 8-12

Decline Dumbbell Flys  
3 x 10-12

Dips  
2 sets to failure

**T**

## BACK

Wide-Grip Chin-Ups  
3 x 10-12

Close-Grip Chin-Ups  
3 x 10-12

Barbell Rows  
4 x 8-12

T-Bar Rows  
3 x 8-12

Deadlifts  
5 sets - 15, 12, 10, 8, 6

One-Arm Cable Rows  
2 x 10-12

Dumbbell Pull-Overs  
2 x 10-15

**W**

## REST

**T**

## SHOULDERS

Military Press  
4 x 10-15

Front Dumbbell Raises  
3 x 12-15

Rear Dumbbell Laterals  
3 x 12-15

Side Dumbbell Laterals  
4 x 10-15

Side Cable Laterals  
2 x 12-15

Barbell Shrugs  
4 x 10-15

**F**

## ARMS

Cable Push-Downs  
4 x 12-15

Close-Grip Bench Press  
4 x 10-15

Overhead One-Arm  
Dumbbell Extensions  
3 x 12-15

Weighted Dips  
3 x 10-12

Barbell Curls  
4 x 12-15

Seated Dumbbell Curls  
3 x 12-15

Dumbbell Preacher Curls  
3 x 12-15

Hammer Curls  
3 x 10-12

Reverse Curls  
2 x 15

**S**

## LEGS

Squats  
5 Sets - 15, 12, 10, 8, 6

Leg Press  
4 X 15-20

Hack Squats  
3 X 15

Leg Extensions  
4 X 12-15

Lying Leg Curls  
4 X 15

Straight-Leg Deadlifts  
4 X 12-15

Seated Leg Curls  
2 X 15

**S**

## REST



Find us at /BSNSupplements.



FINISH FIRST.®





## Dallas McCarver

### IFBB Professional Bodybuilder

- D.O.B. - April 9
- Height - 6'0"
- From - Jackson, TN
- Weight - 260 lbs.

On March 23, Dallas beat out an impressive lineup of Professional Bodybuilders to win the 2015 IFBB California State Pro Championships in Culver City. Coming out on top in this national qualifier event punched his ticket to Las Vegas where Dallas will compete against the biggest names in the world of men's bodybuilding. Check out his grueling training regimen and take in each component of the diet that fuels this Herculean effort. It's an extremely difficult road, but not a long one, concluding on September 19 when Dallas takes the Mr. Olympia stage.

Dallas McCarver started weight training in high school as part of his football team's strength and conditioning program. He went on to play college football at Bethel University, but eventually decided to give up playing football in order to pursue bodybuilding full-time. He stepped onstage for the first time at age 20 at the 2011 NPC Hub City Fitness Quest, winning the junior heavyweight and junior overall trophies.

Next came the 2011 NPC Battle at the River, where he won the super heavyweight and overall classes. His third competition was the 2012 IFBB North American Championships, where he once again was named the super heavyweight and overall champion, becoming the youngest ever overall champion at a national show. The win also earned him his IFBB pro card, making him the youngest professional bodybuilder in the world. With so much potential at such a young age, the sky's the limit for what Dallas can achieve in the sport of bodybuilding.





# DALLAS McCARVER'S ROAD TO OLYMPIA



FINISH FIRST.®

## MEAL PLAN

MEAL  
01

2 Whole Eggs  
1.5 Cup Egg Whites  
100 Grams Oats  
2 Fish Oil DNA™  
1 CLA DNA™

MEAL  
02

7 oz Sirloin  
210 Grams Jasmine Rice  
50 Grams Avacado

MEAL  
03

7 oz Chicken  
12 oz Yams  
50 Grams Avacado  
2 Fish Oil DNA™  
1 CLA DNA™

PRE  
WORKOUT

2 Scoops N.O.-XPLODE®

INTRA  
WORKOUT

2 Scoops AMINOx®

POST  
WORKOUT

90 grams cream of rice  
75 grams SYNTHA-6®  
10 grams GLUTAMINE DNA™

MEAL  
04

10 oz White Fish  
280 Grams Jasmine Rice

MEAL  
05

7 oz Chicken  
8 oz Yams

MEAL  
06

2 Cup Egg Whites  
32 Grams Peanut Butter  
2 Slices Sprouted  
Bran Toast  
1 CLA DNA™  
2 Fish Oil DNA™



### AMINOx®

AMINOx® is a stimulant free, BCAA formula designed to support endurance during your workout and aid in muscle recovery post training, so you can push your performance to the next level.

### CLA DNA™

CLA DNA™ provides 750mg of CLA per serving to help support healthy body composition and weight management. It is free of stimulants so you can take it any time of day.

### FISH OIL DNA™

FISH OIL DNA™ delivers 1g of fish oil (300mg Omega-3 Fatty Acids) per serving for cardiovascular support.

### GLUTAMINE DNA™

Each serving of GLUTAMINE DNA™ provides 5 grams of 100% micronized L-Glutamine, which is the most abundant amino acid in the body and plays an important role in muscle recovery and muscle protein development.

### N.O.-XPLODE®

N.O.-XPLODE® is a complete pre-workout igniter that delivers enhanced energy and endurance, supports mental focus and muscular strength, and provides second-to-none intensity to help athletes of all levels maximize workout performance.

### SYNTHA-6®

Using a quality protein powder will help supplement the daily amount of protein required by your body and help you to reap the benefits from every training session. SYNTHA-6® is an ultra-premium protein powder with 22g protein per serving and is available in over 10 decadent flavors.

GNC theVitamin Shoppe B amazon.com and you're done!

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

©2015 BSN® For best results supplements should be taken as directed over time, at maximum dosage in conjunction with a healthy diet and regular exercise program. Results may vary.





DALLAS MCCARVER  
AND FITNESS MODEL  
PAIGE HATHAWAY



# THE ULTIMATE



# V-TAPER WORKOUT

## A LONG WAIT – BUT WELL WORTH IT

Back when I was a youngster in this industry, it was very common for a man to turn pro at the USA or Nationals and immediately vault into the upper echelons of the pro ranks, winning shows and often becoming a contender at the Mr. Olympia very quickly. We saw it in the '80s with men like Lee Haney, Lee Labrada and Mike Christian, and in the '90s with fast-rising stars like Flex Wheeler, Kevin Levrone and Dorian Yates, just to name a few. As the years went by, the pattern slowly shifted. It soon became more typical for a newly minted pro to take a full year off competing to improve before stepping on an IFBB stage for the first time. Dallas McCarver is probably the poster boy for this. Nearly three years passed between his winning the 2012 North American at age 21 and his pro debut in late May 2015, winning the California Pro. Some fans and pundits were upset that he waited

so long, even to the point of sounding outraged or disgusted that he felt he required a span of nearly three years to be “ready” for the pro ranks, when the aforementioned legends of the past jumped right into the fray.

What some critics failed to realize was just how new to the sport Dallas was when he turned pro in only his third contest ever. “I started training and eating like a bodybuilder when I began prepping for my first show, in January of 2011,” he explains. “And I won the North American in August of 2012. So I had really only been bodybuilding about a year and a half at that point.” Though he had done some

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BY RON HARRIS  
PHOTOGRAPHY BY MICHAEL NEVEUX





reading and had spoken to the few people in the know who would give him the time of day, McCarver was still very much in the process of figuring his body out. One thing he was certain of was that he wasn't ready to compete as a pro yet. "I knew that when I did get up there with the other pros, I wanted to be respectful of the IFBB and look like I really belonged, not one of those guys you sometimes see where it's so obvious he has zero chance of doing well." After the North American win, he gave himself a year to train and improve. "At that point, I would see where I was at and decide whether or not I was ready to pick a show," he says. That plan changed in early 2013 when his new sponsor, BSN, had him diet down to shoot photos for their print ads. "They told me they were fine with me waiting until as long as 2015 to compete if I wanted to," he tells us, "and that sounded perfect to me. I knew I had a lot of work to do."

### THE GROWING THREAT

The next couple of years were a learning experience, one that continues now. "You can seek out all the best expert advice and info you want, but in the end you still need to learn your own body," he begins. "For instance, maybe I ate this and then went to train, and it turned out that wasn't a good pre-workout meal choice for me. Or maybe I had been doing something as a third exercise in a routine for a body part, and I find that I get a lot more out of it by moving it up to the front of the workout. Even little things all make a difference, like health and maintenance, getting therapy like deep-tissue massage. It's all about finding out what gives you the best results." His focus that entire time was essentially the core of what many feel bodybuilding is— to get bigger overall. "I did put special emphasis on my quads and hams and getting more front-to-back thickness with my chest and back, but overall I felt that if I just kept growing and kept my proportions roughly the same, given my frame and shape, I could put a pretty good physique together for the pros." And that he did, joining the elite group of men who have walked away from their debut with first place.

### GROWING WHILE KEEPING THE V

Dallas weighed in at 241 pounds at 6'1" for his North American win back in 2012. For his California Pro win, he was around 265 and in better condition. That means his net lean mass gain



was even greater than the 24 pounds of scale weight would indicate. In his long off-season in quest of that needed mass, his weight climbed to a high point of 310-312 pounds. I'm not done with the numbers yet, folks, so get ready for the final shocker. When he won the North American at 241 pounds, his waist measured 34 inches. At his recent California Pro win with an added 24 pounds of bodyweight, it was only 33 inches! How was that possible? As we said, he was leaner. But most bodybuilders are incapable of gaining significant size without some of it going to their midsection. Dallas never felt that was inevitable, and in fact he was always conscious of keeping his midsection as small and tight as he could. "To me, if you gain two inches around your chest, two inches on your quads and inch on your arms, but two inches on your waist, you failed," he opines. "You haven't made your physique better, you just made a bigger version of the same exact physique."

Dallas did credit a change in his nutrition habits that helped him not only maintain, but improve his taper. "In my football days and early on in my bodybuilding career, I would eat so much that I almost felt like throwing up," he says. "Eventually, I found that if I cut back on my protein intake, it would not only allow me to eat more carbs and good fats, but I didn't have that bloating that comes with so much food and waste in you."

He doesn't take all the credit for being able to stay fairly lean at all times. That goes to his naturally fast metabolism. "I diet on 5,000 or 5,500 calories, which is more than a lot of guys eat even when they are trying to bulk."

Many trainers tell bodybuilders to avoid certain exercises that they feel will add bulk to the midsection, but McCarver doesn't shy away from any. "The only thing I won't do is abdominal movements using heavy weights," he notes. "Why would you want to have huge abs? That's going to make your midsection thicker."

### **KEYS TO THE V: BACK, DELTS AND ABS**

As much as some of us poke fun at the Men's Physique division, those guys do have it right in terms of what to focus on to create the most dramatic V-taper possible in your physique: the back, the shoulders and the abdominals. Since Dallas has one of the best tapers around in pro bodybuilding today, we had the rookie demonstrate his favorite exercises for those areas.

**"I KNEW THAT WHEN I DID GET UP THERE WITH THE OTHER PROS, I WANTED TO BE RESPECTFUL OF THE IFBB AND LOOK LIKE I REALLY BELONGED, NOT ONE OF THOSE GUYS YOU SOMETIMES SEE WHERE IT'S SO OBVIOUS HE HAS ZERO CHANCE OF DOING WELL."**







## WIDE-GRIP CHIN-UPS

Dallas considers this a bread-and-butter movement of back training, and starts every workout off with it as a general warm-up. "I don't do them to failure, and I don't add weight," he says. "I do them to loosen up the shoulders and open up the scapulae, and warm up the back, shoulders and biceps." Oftentimes, he will revisit them later in the workout when they are tougher, and use them to build upper back width.



## SEATED CABLE ROWS

From workout to workout, Dallas will alternate seated cable rows with T-bar rows. "I pull low, right to the navel, so the focus is on my lower lats and the Christmas tree," he notes. "I like the cable row because of the smoothness of it, and how it allows me to emphasize both the stretch and the contraction." For best results, he keeps his torso upright as shown, rather than allowing it to lean forward or backward.

## LAT PULLDOWNS WITH DUAL HANDLES

Dallas uses several variations of lat pulldowns, choosing different grip attachments at various workouts. He is partial to the dual handles shown here. "With the length of my arms and how wide my shoulders are, a standard narrow grip attachment doesn't allow me much of a range of motion," he explains. "Using two handles that I can pull apart as I pull down allows me to open everything up more."



## TRAINING SPLIT\*

- |               |                            |                                |
|---------------|----------------------------|--------------------------------|
| <b>Day 1:</b> | Quads – a.m.               | Hams and calves – p.m.         |
| <b>Day 2:</b> | Chest – a.m.               | Biceps and some triceps – p.m. |
| <b>Day 3:</b> | Back                       |                                |
| <b>Day 4:</b> | Shoulders and traps – a.m. | Triceps and some biceps – p.m. |

*\*Rest days are taken as needed. Typically, Dallas will train two or three days in a row before taking a day off. Morning workouts are done at 12:30 p.m., and evening workouts take place at 7:00 p.m.*



**"YOU CAN SEEK  
OUT ALL THE BEST  
EXPERT ADVICE  
AND INFO YOU  
WANT, BUT IN THE  
END YOU STILL  
NEED TO LEARN  
YOUR OWN BODY."**

### **SINGLE-ARM FRONT RAISES**

McCarver also likes to change the angle on front raises, by performing them lying facedown on an incline bench. "If you did them this way standing, the dumbbell would be over your head at the end of the rep and you would lose that isolation on the front deltoid," he notes.




### **DALLAS' COMPLETE CONTEST HISTORY**

2011 NPC Hub City Fitness Quest  
2011 NPC Battle at the River  
2012 IFBB North American  
2015 IFBB California Pro

Junior Heavyweight and Overall Champion  
Super Heavyweight and Overall Champion  
Super Heavyweight and Overall Champion  
Winner





**"TO ME, THE ABS  
ARE KIND OF LIKE  
THE CALVES—  
UNTIL I GET TO AT  
LEAST 15 REPS, I  
DON'T FEEL ANY  
KIND OF PUMP  
AND BURN AT ALL."**



## BEHIND-NECK SMITH MACHINE PRESS

It's practically sacrilegious for bodybuilders to press behind the neck in 2015, lest their rotator cuffs explode in a spray of blood and gristle. Dallas doesn't feel this is a dangerous exercise at all. It's his favorite, in fact, and he does these at every shoulder workout. "You have to use less weight than when you press to the front, which is actually safer on your joints," he points out. "You also have to stay upright rather than leaning back as most guys tend to do pressing to the front, so it forces better form. If you lean back at all doing these and start turning it into an incline press, you'll whack your head with the bar."

## DUMBBELL LATERAL RAISES

This is a basic movement for getting those round, capped delts we all want. Dallas likes to keep his pinkies raised up, and doesn't lead with the hands as many do, but rather the elbows. "I used to do three to four sets of 12-15 reps, but I found I got better isolations and contractions by going higher with the reps. Now I do two sets of 20 reps with four to five partials." He's also lightened the load to focus more on isolating the medial deltoids. "In the past, I went as heavy as 100s with pretty awful form," he admits. Now he sticks with 40s or 50s at most.



## CABLE LATERAL RAISES

The cable version of the lateral raise allows for resistance and stretch in the bottom segment of the range of motion, and also lets Dallas achieve a full contraction at the top of the rep. "Leaning away from the weight stack like I do changes the resistance curve," he tells us. "At the completion of each rep, I can also shift the stress to the very top of the side delt."



## DALLAS McCARVER'S 'GET RIPPED FAST' DIET\*

- Wake:** 1 serving THERMONEX, 4 oz. black coffee  
45 minutes cardio (treadmill, StepMill, elliptical, bike or outside walking)
- Meal 1:** 2 whole Omega-3 eggs, 10 egg whites, 1/2 cup Cream of Rice  
+ 45 minutes – 1 serving NITRIX 2.0 Pre-workout

### WEIGHT TRAINING SESSION #1

- Meal 2:** 10 oz. chicken breast, 1 cup jasmine rice
- Meal 3:** 10 oz. tilapia, 10 oz. sweet potato
- Meal 4:** 10 oz. chicken breast, 1 cup jasmine rice  
+ 45 minutes – 1 serving NITRIX 2.0,  
1 serving N.O.- XPLODE Pre-workout

### WEIGHT TRAINING SESSION #2, 20 MINUTES HIIT CARDIO

- Meal 5:** 10 oz. tilapia, 1 cup jasmine rice
- Meal 6:** 12 oz. tilapia, 1 cup asparagus

\*All supplements by BSN





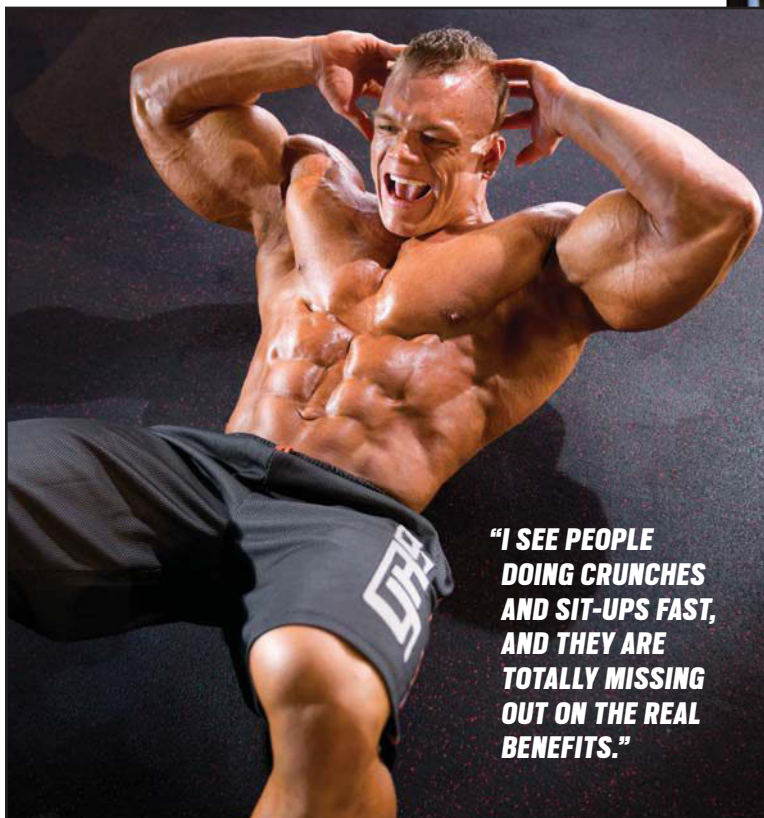
## HANGING LEG RAISES

Few abdominal exercises are as tough as the hanging leg raise, particularly if like Dallas, you have some serious meat on your legs to weigh them down. He will do these either hanging, as shown, or on the bottomless elevated chair I've often heard called a "captain's chair," on which you support your bodyweight on your elbows and forearms. In either version, he raises his legs straight up until his feet are roughly at the level of his top row of abs. "I raise my legs up until my abs are fully contracted, and I'm not really thinking about where my feet are," he adds.



## ROPE CRUNCHES

Rope crunches are a very common ab movement, but most people face the weight stack. Dallas prefers facing away and positioning his body a bit further away to allow for a full stretch of the abs at the top. "Any muscle should be worked through a full range of motion that includes a good stretch as well as a good contraction, even the abs," he explains. Dallas keeps the reps higher not only because he doesn't want to build big, blocky abs, but also because low reps do nothing for him here. "To me, the abs are kind of like the calves—until I get to at least 15 reps, I don't feel any kind of pump and burn at all."



**"I SEE PEOPLE DOING CRUNCHES AND SIT-UPS FAST, AND THEY ARE TOTALLY MISSING OUT ON THE REAL BENEFITS."**

## FLOOR CRUNCHES

Every ab workout for Dallas starts with some type of crunch, the most basic of all abdominal movements and one that requires absolutely no equipment. His reps typically start off higher and diminish slightly as the sets proceed. "It usually goes something like 25-30 reps, 20-25, 15-20 and 15-20," he says. These are not ballistic reps. "I see people doing crunches and sit-ups fast, and they are totally missing out on the real benefits," he notes. "I come to a full stop at the top of every rep as I'm blowing out the air, flexing the abs hard. That's how you really engage the abdominals."



## THE SHAPE OF THINGS TO COME, AND THE MR. O... YES OR NO?

With all the talk about returning to a more classical look and punishing big guts in the wake of Arnold's blistering commentary back in March in Columbus, I had to ask if he felt the sport would truly move in that direction now. He wasn't sure. "I look at it sort of like a car show," he says. "You have your big-frame cars like the Buicks and the Impalas, you have your smaller sports cars, your Mustangs and Corvettes and Chargers. They are all in different classes and they all have their own devoted fans. There will always be a demand for the big, freaky physiques that may not have the best lines or taper. I personally would not mind if judging trends swung more toward symmetry and balance, and away from distended guts."

The big question fans were asking as soon as Dallas won his pro debut was, would he use that qualification for the Mr. Olympia this year and jump right into the fire? "On one hand, expectations on me are pretty low, and I have no illusions about placing well," he admits. "But even if you get last in the Mr. Olympia, that still means you are one of the best 15-20 bodybuilders in the world." The only real negatives in doing the show are that he wouldn't get much of a break at all to recuperate from his prep for the California Pro, and the time he would spend dieting for the O is time he could be using to grow and improve for the 2016 season. "I'm leaning toward doing it," is his last word on the subject. In the meantime, there are lessons to be learned from this 24-year-old rookie pro from Tennessee. He managed to add very significant amounts of muscle mass in all the right places, kept his waist small and in the process, dramatically enhanced his V-taper. If that sounds like something you'd like to do as well, pay heed to what he does.

**"I FELT THAT IF I JUST KEPT GROWING AND KEPT MY PROPORTIONS ROUGHLY THE SAME, GIVEN MY FRAME AND SHAPE, I COULD PUT A PRETTY GOOD PHYSIQUE TOGETHER FOR THE PROS."**







BY RON HARRIS  
PHOTOGRAPHY BY JASON BREEZE



**JUAN  
MOREL**

# MY 14

# MOST PRODUCTIVE

# LIFTS!

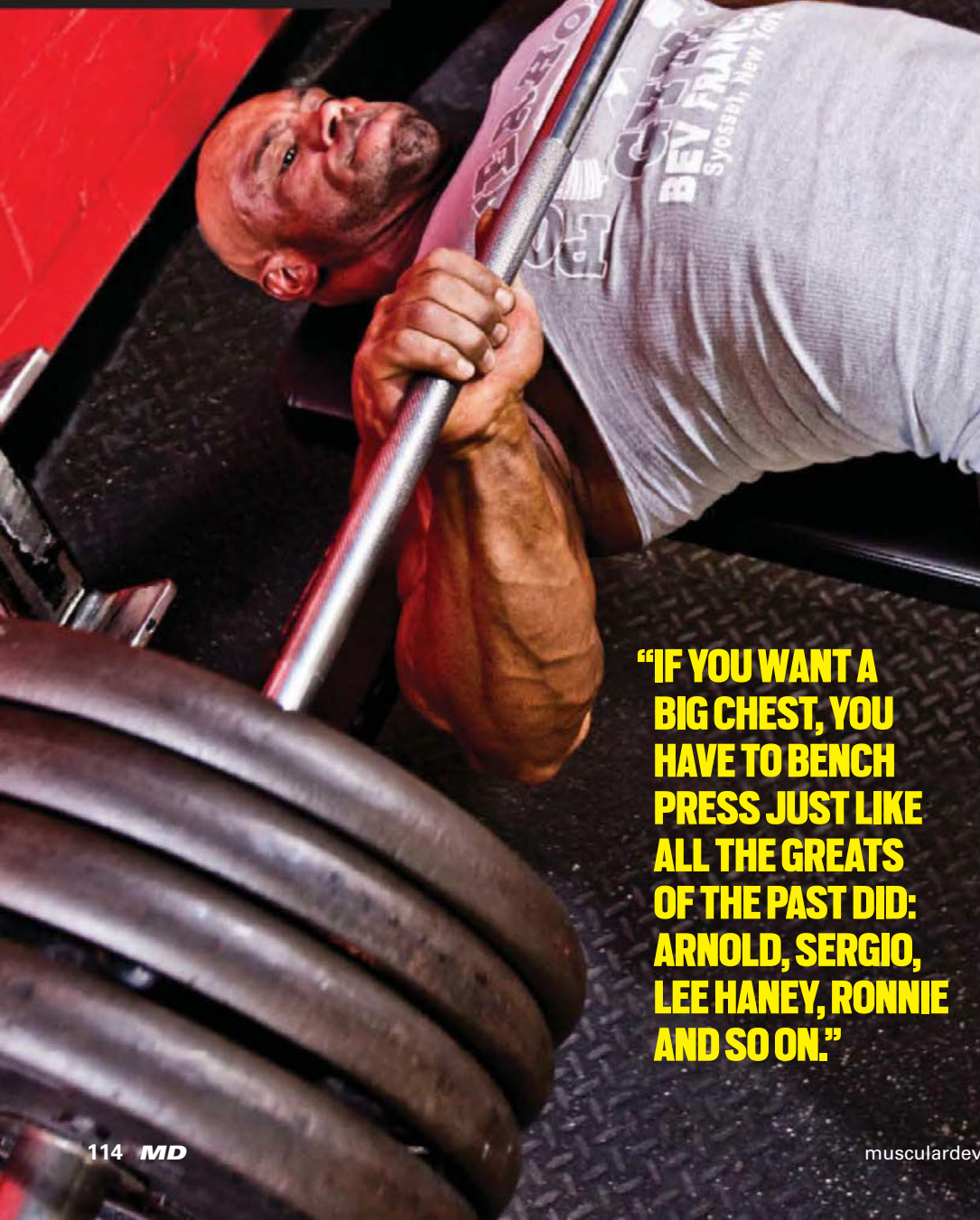
## GET GROWING WITH THE 2015 NEW YORK PRO CHAMP

### THE DOMINICAN WHO DOUBLED IN SIZE

*This will be hard for many of you to believe, but the pro bodybuilder nicknamed “Diesel” was not a big guy when he started training. Growing up in New York, he was actually a lanky kid who was one of the best handball players in the city before turning his attention to boxing. Juan started lifting weights at age 20 to develop more power in the ring, and after two years he had grown from 150 to 170 pounds— and at 5’11”, he was hardly a beast. It was in 2007 when he decided, at age 22, to become a bodybuilder that the magic really started to happen. Within three months, Morel tipped the scales at 200 pounds, and was on his way to becoming the massive man we all know today. From that very humble starting point of 150 pounds, Juan has literally doubled his weight, hitting a very solid 300 pounds or more in the off-season and winning the recent New York Pro at 270. Those among you who yearn to be bigger— and isn’t that all of you?— should be interested in what Juan did to pack on all that freaky size. Of course, there was a tremendous amount of eating involved, especially since Morel has a naturally fast metabolism, but there were also thousands of gut-busting workouts. I spoke with him after he won the New York Pro— a contest in which he had progressed from fourth, to third and second place each year, until he won it on his fourth try— to find out which exercises have played the most important roles in building his amazing physique.*







## 1. FLAT BARBELL BENCH PRESS

**History:** This was an exercise Juan was doing from day one, when he had only a vague awareness of bodybuilding and hadn't yet become interested in it. Wherever you go, any place where weights are lifted, the bench press has an esteemed reputation. "This is the main mass and strength builder for the chest," Morel says. "If you want a big chest, you have to bench press just like all the greats of the past did: Arnold, Sergio, Lee Haney, Ronnie and so on."

**Results:** Juan's chest was a weak point in his early years of lifting, somewhat flat and shallow compared to his shoulders and back. "It took a while, but years and years of bench-pressing helped me build the thickness I was after." Most training experts firmly believe that strength and size are closely related, so it should come as no surprise that Juan's bench press for reps progressed over the years from 135 to 500 pounds.

**Tips or adjustments:** For any exercise, everyone should experiment to find the best way to perform it so that you feel it maximally in the target muscle, just as Juan did with the bench press. "I touch my chest at the bottom of every rep, but I only go up about three-quarters of the way, never to lockout," he tells us. "That allows me to keep the tension on my chest instead of letting my shoulders and triceps take over at any point. The pumps I get this way are so much better than years ago when I used to lock out my arms like they tell you to."

**"IF YOU WANT A BIG CHEST, YOU HAVE TO BENCH PRESS JUST LIKE ALL THE GREATS OF THE PAST DID: ARNOLD, SERGIO, LEE HANEY, RONNIE AND SO ON."**



## 2. INCLINE BARBELL BENCH PRESS

**History:** "I always did incline presses, but flat benching was my main thing for a long time," Juan admits. Only when he took an honest look at his chest did he realize his upper chest thickness was lagging behind, and from that day onward, inclines would be the star of the show on chest day. Typically, he now does two or even three incline-pressing movements and just one flat press in a given workout.

**Results:** Hard work under the incline bar with sets as heavy as 405 for 12 reps did their intended job, filling in Juan's upper chest until it matched the thickness of his mid and lower pecs. "It pops up nice and high in my side chest shot now," he adds. "And that's what I was trying to achieve."

**Tips or adjustments:** Juan's best advice on how to get the most out of incline presses can be summed up in four simple words: "Keep your chest high." By putting a slight arch in your lower back, rolling your shoulders back and down toward your waist, and popping the chest up, you shift as much stress to the upper pecs as possible.



## 3. PULL-UPS

**History:** Pull-ups are one of those ubiquitous exercises that just about anyone who has ever worked out does at one time or another, and Juan is no exception. "I always wanted a wide back, because I felt my shoulders and back were too narrow." When he started doing pull-ups, he found he could only manage two or three in spite of his greatest effort. "I had the goal of getting 10 reps of pull-ups in a row," he says. It took him six months to accomplish that feat. "But man, was I psyched when I got that!"

**Results:** Pull-ups did make Diesel's back wider, and he feels that all bodybuilders should pay their dues at the pull-up bar before they even think about doing lat pulldowns. "Pull-ups are basic, they're very tough to do properly, and they work the entire upper back hard."

**Tips or adjustments:** Though many bodybuilders like to switch up different grips for pull-ups, such as the standard wide grip, underhand or neutral grip with hands facing each other, Morel feels wide-grip pull-ups pack the most punch. "For me, they work better than those other variations, so I only do them with a wide grip." Juan keeps a constant piston motion to his reps until the final rep, where he will hold himself in the top position as long as he can, and flex the upper back muscles against the resistance of his bodyweight pulling him downward.





## 4. BARBELL ROWS

**History:** When he first started training, Juan trained more along the lines of a powerlifter and did only basic exercises. Barbell rows were one of that select handful. “For my back, it was pretty much just these, pull-ups and deadlifts for a couple of years to build a base.”

**Results:** “My back became much thicker from barbell rows,” Juan says. “And that happened pretty much in proportion to how much stronger I got at them.” For inquiring minds, that eventually became 405 for 12 or more reps, and 495 for six.

**Tips or adjustments:** To wring every last drop of back thickness out of barbell rows, Morel does both the standard overhand grip as well as the underhand grip popularized by Dorian Yates over 20 years ago, usually in the same workout. “I feel the underhand grip working a little lower down the lats than the overhand one,” he explains. “The back is such a big and complex muscle group that you have to mix things up to keep seeing gains.”



## 5. DEADLIFTS

**History:** As we just discussed, deadlifts were a staple from Juan's first day at the gym, and they continue to enjoy star status in his back workouts today.

**Results:** Deadlifts may be thought of by most as a back exercise, but they are actually the closest thing to a “whole body movement” there is. Not only does the entire structure of the back, from traps to lumbers, contribute to squatting down, pulling a heavy bar off the ground and standing up with it, but so do the quads, hams, glutes and even the rear delts and biceps. “Deadlifts have done so much for my physique that I can't imagine ever not doing them,” Juan adds.

**Tips or adjustments:** That being said, just this past off-season, Juan made a major change to the way he deadlifts. Until then, he had consistently worked up to singles and doubles, with as much as 700-800 pounds, more along the lines of a powerlifter than a bodybuilder mentality. Late last year, Morel made the decision to stop doing any fewer than eight reps, both to provide more time under tension and to avoid the possibility of injury. “I still pyramid up to doing eight reps with 600, then always like to finish off with 500 for 15 reps to really burn out my back,” he explains.

**“FOR MY BACK, IT WAS PRETTY MUCH JUST [BARBELL ROWS], PULL-UPS AND DEADLIFTS FOR A COUPLE OF YEARS TO BUILD A BASE.”**





## 6. MILITARY PRESS

**History:** Juan had always done military presses, as they were among those select few basic movements that he knew were essential, early on. But Juan did most of his in a way few modern bodybuilders even try—standing. It wasn't out of any devotion to old-school methods, rather an accident of fate. "I was waiting for the seated military bench and rack one day when the gym was crowded, and I just got sick of waiting and loaded up a bar to clean from the floor and press."

**Results:** Heavy overhead pressing helped turn Juan's shoulders from a weak point on his physique to a decided advantage.

**Tips or adjustments:** In 2013, Morel found that standing military presses were giving him severe elbow tendonitis, and from that point on he moved to doing his presses on the Smith machine, pressing both to the front and behind the neck. "Barbells gave me excellent results, but I have also continued to make gains on the Smith machine."



## 7. DUMBBELL LATERAL RAISE

**History:** Presses certainly helped create the melon delts Juan sports today, but he gives equal if not greater credit to lateral raises. "My shoulders were droopy, and they needed caps badly," he explains. He didn't fall in love with laterals until a couple of years into bodybuilding, but from then on, he's consistently done no fewer than six sets of them per shoulder workout.

**Results:** The results are obvious. Plenty of guys have big shoulders, but very few have the type of exaggerated roundness and fullness you see here with Juan's medial deltoids.

**Tips or adjustments:** Until 2007, Juan had been seeing almost zero results from lateral raises, and arrived at the conclusion that maybe trying to go as heavy as possible on them wasn't working. "I never even felt my side delts working or got a pump," he reveals. Focusing on the feeling in his shoulders and chasing the most full-blown pump possible, Juan went much lighter and finally was pleased to see his shoulders start filling out almost immediately. "A lot of people think I'm kidding when I say I don't go heavier than a pair of 25s, but that's the truth," Juan confesses. "I used to use twice the weight and had half the size in my shoulders that I do now, so what does that tell you?"







## 8. BENT DUMBBELL REAR LATERALS

**History:** No bodybuilder who even dreams of being a top pro should neglect his rear delts, and Juan knew way back that rear laterals were the bread-and-butter movement for them. "I had it in my head that I would leave no stone unturned, and I wanted 3-D delts. That meant rear delts that matched the front and sides."

**Results:** Unlike many guys, Juan's rear delts never lagged behind. Thanks to his dedication to hitting those bent rear dumbbell laterals, he was never in a position where he had to play catch-up.

**Tips or adjustments:** Juan doesn't have any unique performance style for his rear laterals, but he does arrange them differently than most of us. "Instead of doing them on their own for a bunch of sets, I usually superset them with lateral raises." When you are chasing the pump on shoulder day the way Juan does, this is a very effective idea, and a time-saver as well.



## 9. EZ-BAR CURLS

**History:** "For a long time, I was stubborn and did my curls with a straight bar, even though they were giving me forearm splints, which are pretty similar to shin splints." Eventually, Morel couldn't ignore the fact that he felt no pain on the rare occasions when he curled with an EZ-curl bar instead. From then on, he switched to the cambered bar and no longer experienced agonizing pain in his forearms.

**Results:** Juan's biceps flourished, thanks to many tough sets ground out with an EZ-curl bar grasped in his hands. They actually grew to the point where they made Morel's triceps seem somewhat weak in comparison, a couple of years ago.

**Tips or adjustments:** Juan's best tip here mirrors what he had discovered about lateral raises. "The biceps are a small muscle group," he begins. "They don't need a ton of weight, and if you use a ton of weight on curls, there's no way you will give them the stimulation they need to grow. You'll be working more shoulders and lower back than biceps. Use a weight you can control and feel the biceps working with."





## 10. SKULL-CRUSHERS

**History:** Since this is the most basic of all triceps movements, it's one that Juan was doing all along. Because his elbow tendonitis still occasionally flares up, and skull-crushers make it feel like there is broken glass grinding around in his triceps, he will take breaks of several months at a time from them.

**Results:** "For years, these were my go-to triceps exercise, and they did the job well," Morel says. "I just can't do them all the time anymore."

**Tips or adjustments:** To provide variation within the same exercise, Juan will do three sets differently, lowering the bar to different points for each. "On the first set, I lower to my nose, the second one is down to my forehead and the third set, the one where I feel the greatest stretch, is where I lower the bar just past my head."



**JUAN HAS FOUND THAT GOING HEAVY DOESN'T GIVE HIM THE BEST RESULTS. "THIS BLOWS MY TRICEPS UP LIKE BALLOONS. AND THAT'S MY GOAL WHEN I TRAIN THEM NOW."**

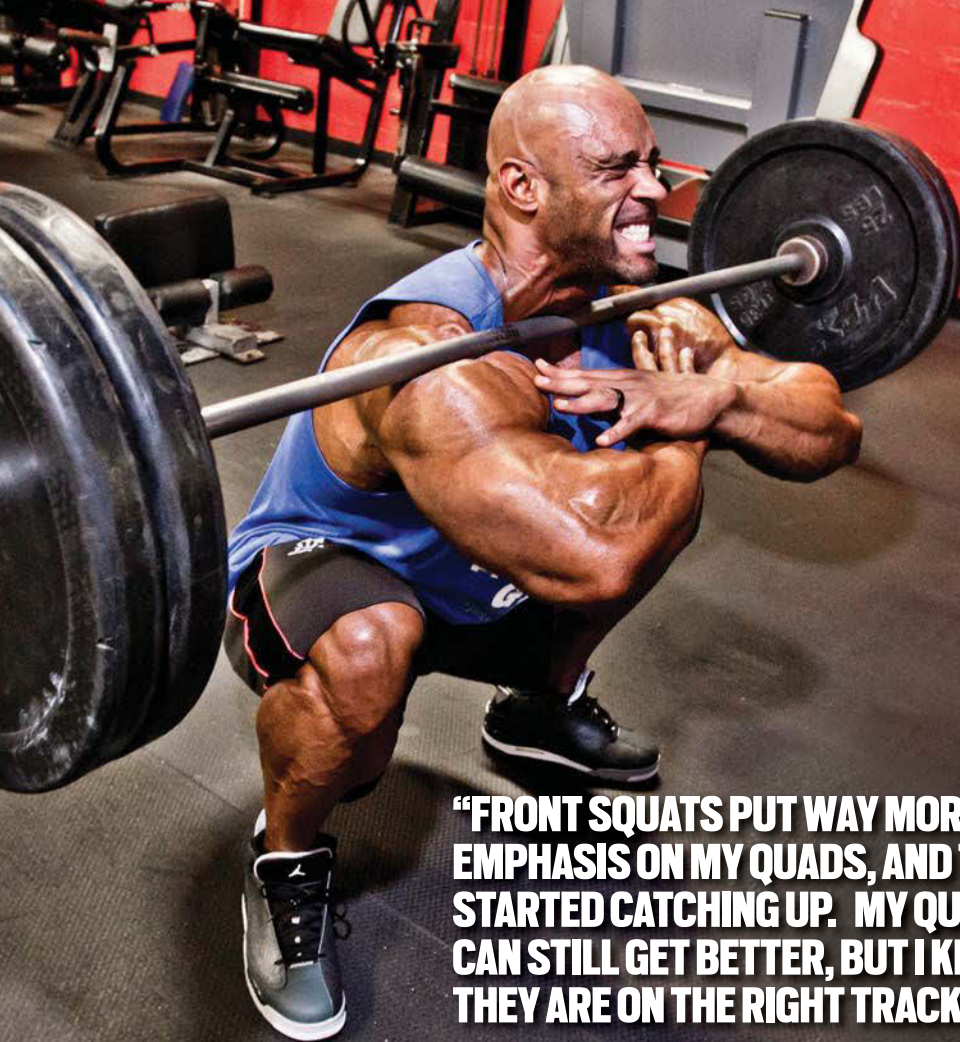
## 11. CABLE PUSHDOWNS

**History:** Though cables played only a minor role in his arm training over the first phase of his bodybuilding career, they have taken on a greater prominence over the last year, as his elbow pain made barbell and dumbbell extension movements impossible at times.

**Results:** "I am able to get a great pump with pushdowns without aggravating my elbows," Morel states. "I had it in my head that heavy free weights were the only way I was going to get my triceps to grow, but I found that it's just not true."

**Tips or adjustments:** As with other exercises, Juan has found that going heavy doesn't give him the best results. Of course, he still uses weights that most of us probably couldn't budge, but the reps are around 12-15 per set and the overall volume is high. "I find this blows my triceps up like balloons," he notes. "And that's my goal when I train them now."





**“FRONT SQUATS PUT WAY MORE EMPHASIS ON MY QUADS, AND THEY STARTED CATCHING UP. MY QUADS CAN STILL GET BETTER, BUT I KNOW THEY ARE ON THE RIGHT TRACK NOW.”**



## 12. FRONT SQUATS

**History:** Juan never did a lot of front squats for years, as he was too busy being a wrecking machine on squats. At one point, he was able to squat 750 pounds for a couple of reps. But as the years went by, he couldn't help but notice that his glutes and hams seemed to be getting more out of squats than his quads. And worse, all the comments about his physique once he turned pro were about how his quads were mediocre compared to his massive upper body. Three years ago, he started to back off squats and do more fronts, and a year ago he stopped doing squats completely.

**Results:** “Front squats put way more emphasis on my quads, and they started catching up,” Juan reports happily. This year, many of the observations about his physique when he won the New York Pro were that his quads finally matched the rest of him. “That was a good feeling,” he says. “My quads can still get better, but I know they are on the right track now.”

**Tips or adjustments:** Morel concedes that front squats can be a very awkward movement that takes time and effort to master. “You just can't give up,” he advises. “It took me probably a whole year of doing them before I figured out the best way to position the bar across my shoulders, the best way for me to grip the bar and so on.”

## 13. STANDING CALF RAISES

**History:** Juan has a love/hate relationship with calf training. Though he has been generously blessed with gifted genetics for most of his other muscle groups, calves are clearly something he has never been able to take for granted like some, and never will.

**Results:** “My calves have come up since I started training, obviously, but they are stubborn,” Juan informs us. “I refuse to give up on them or stop training them as hard as I can.”

**Tips or adjustments:** One thing that Juan has found made a small but noticeable difference was in upping the frequency of his calf training to three times a week. “I think the calves are a very tough, dense muscle that are used to a lot of work already,” he explains. “Working them once a week isn't going to cut it unless you were born with big calves.”







#### 14. LEG PRESS

**History:** For most of the time Juan has been bodybuilding, he has shared the same mentality as most of his meathead brethren—load that sucker up with plates! As you might imagine, he was able to do reps with anywhere from 12 to 15 plates per side, and even a few more on some occasions when he was feeling especially strong.

**Results:** As with heavy squats, Juan never saw the level of results he was hoping for with the leg press. Not to say they didn't contribute to more overall bulk, but it still wasn't up to expectations.

**Tips or adjustments:** Around the same time Juan gave up squats for front squats, he made the decision to go higher on reps for the leg press. Instead of 10-12 reps with all the weight the machine would hold, he backed down to eight plates per side and cranked out sets of 40 or more reps. Juan knew instantly that he was on to something, as the pump in his quads was like nothing he had ever felt before on that machine.



Those are the 14 exercises that contributed the most to the transformation of Juan Morel from a 150-pound pipsqueak to a 300-pound aesthetic freak. Will they all be the ideal choices for you? Maybe, and maybe not. It's up to you to experiment with a wide array of movements and variations thereof, figuring out what works and then what works even better with minor adjustments to suit your particular structure and biomechanics. Don't continue doing things that aren't producing results, and never be afraid to try new exercises and techniques that could spur new gains. Let this be a lesson that bodybuilding isn't about copying what someone else does—it's about finding your own path and having the confidence to stay on it, no matter what everyone else around you is doing.







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## MEET MAXX, THE MAN WHO DOES IT ALL WRONG

Maxx Charles (who recently added an extra "x" to his name because he felt like it) is already legendary for how he has been able to rise to the upper echelons of the pro ranks so fast, in spite of how "wrong" his nutrition and training practices are. In the off-season, he subsists on just three meals a day of chicken, rice and beans, while guzzling two to three gallons of V8 fruit and vegetable juice blends, Sprite and Mountain Dew (regular, not diet).

His training style is equally unorthodox. Most top bodybuilders today strive to complete their workouts in 60-90 minutes. Maxx will take three hours or more per daily session. And I do mean daily. He trains every day, with no rest days unless he really feels he needs one. The volume and frequency are high, and so are the reps. As for a rep range, forget about the standard eight to 12 reps. Mr. Charles hits sets of 20-30, and at times uses rest-pause or drop sets to push that total to 40-50.

Finally, range of motion, or ROM, is something Maxx has taken liberties with. More accurately, he has found a ROM that delivers the best results for him, even though most others would harshly denounce what he does as "partial reps." But since we are talking chest, two of the men with the greatest chest development in the IFBB today are Branch Warren and Johnnie Jackson. If you've ever seen them performing their presses, you know that neither of them utilizes a full range of motion either. More on that later—but suffice it to say that when it comes to Maxx Charles and what he does for his chest, it's worked. His pecs are thick, round and full from top to bottom, practically bursting off his torso.

# PUMP YOUR CHEST

## WITH THE HAITIAN





# **TO THE MAXX!**

BY RON HARRIS  
PHOTOGRAPHY BY JASON BREEZE

**SENSATION, MAXX CHARLES**





## INCLINE BARBELL PRESS

This is the first and most important exercise for Maxx on chest day. He will do either four or six sets here, four if he's close to a show and six if it's the off-season. Those numbers also happen to roughly correspond to the number of plates he will do as the sets progress. Charles starts with one 45-pounder per side, or 135, and adds another plate for each subsequent set. He plays it safe and tops out at a "mere" 405 when he's dieted down and nearing a competition, but will go all the way up to 495 or even 585 on occasion, at his heaviest off-season bodyweight of 305. The sets are for 20 or more reps, although the range of motion is decidedly curtailed.

You could easily argue that there is no way in hell he could do 20 full-range reps from chest to lockout with 495, and Maxx doesn't argue with that. "What I do works very well for me," he shrugs. "I don't train to please anyone or to show off. I train to be the best bodybuilder I can be."

Often, Maxx will employ the rest-pause technique on his final set on the incline bar. He will rep-out to failure, rack the bar for about 20 seconds, and then have his training partner hand it off to him once more for as many more reps as he can grind out. Another Maxx Charles quirk is that he prefers to use wrist straps to securely fasten his hands to the bar for that final, heaviest set. Why? "It just gives me a little more confidence and feeling of safety," he tells us.

**"WHAT I DO WORKS VERY WELL FOR ME. I DON'T TRAIN TO PLEASE ANYONE OR TO SHOW OFF. I TRAIN TO BE THE BEST BODYBUILDER I CAN BE."**

## THE EVOLUTION OF MAXX'S CHEST TRAINING

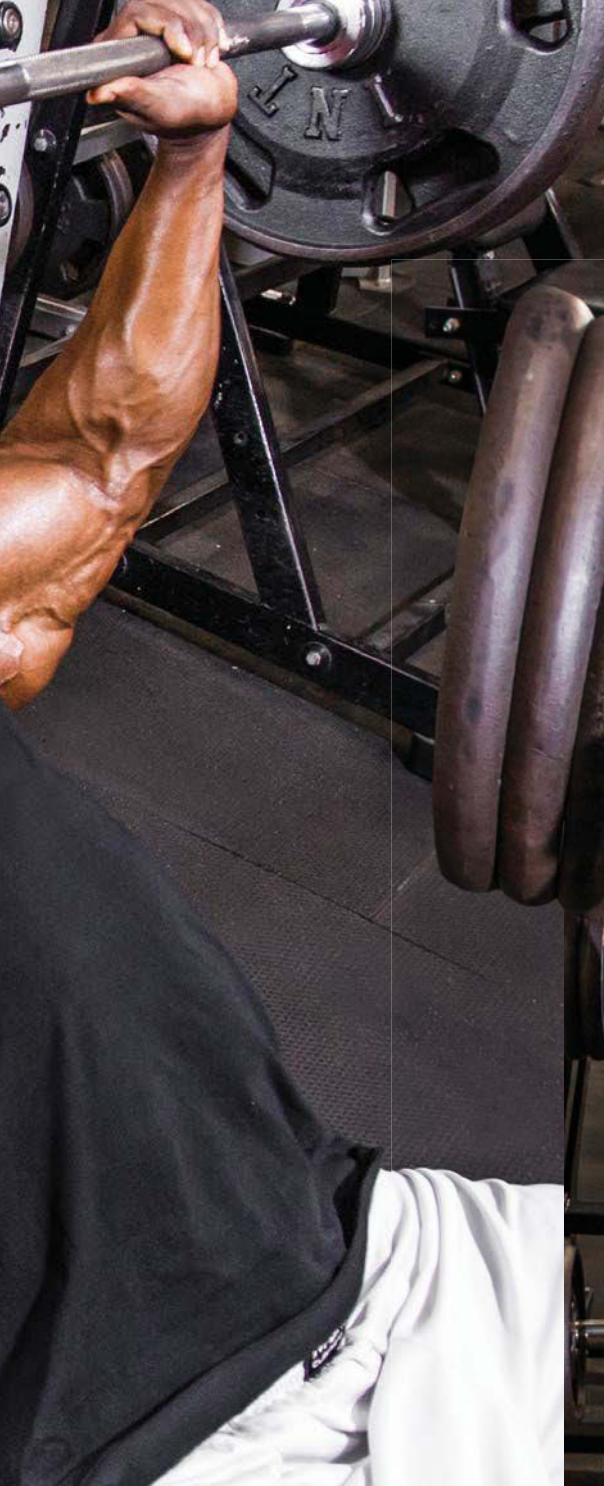
Those impressive pecs, along with Maxx's arms, had one heck of a head start on the rest of his physique due to the fact that he trained them three times a week in his first couple of years of training. Even then, though, he had a method to his madness. "I would work upper chest one day, mid-chest the second day and all lower pecs in the third workout," he clarifies. After that, he reduced the frequency to hitting chest twice a week, with one day for the upper region and the middle and lower chest sharing the second weekly session. Eventually, his training split changed to reflect what areas need more attention. His quads and back are both areas that still need improvement, so Charles trains both of those twice per week. His arms got to the point where any direct training at all made them grow out of proportion and disrupted his balance, so they are no longer trained at all. Maxx's chest and shoulders had both become strong points, so they are worked once a week at present.

## WARMING UP

Most of us only think about warming up our shoulders before we work either chest or shoulders, but Maxx feels we should be equally if not more concerned with our elbows. "When you are pressing very heavy weights, the elbows take a real beating," he notes. "You should never go into those heavy movements with cold elbows."

Maxx found out about the importance of warming up the elbows the hard way, and for several years had to rely on thick neoprene elbow sleeves to make it through chest and shoulder workouts with tender elbows. Recently, he tossed them in his closet. "I realized I had begun to depend on them too much, to the point





## HAMMER STRENGTH INCLINE PRESS

The incline barbell press is nearly always his first pressing movement, unless Maxx has a minor injury or some pain in the shoulders or elbows that make a machine the wiser option on that day. You may have seen photos or videos on social media of Maxx using the Hammer Strength incline press. You would definitely remember if you had, because he loads the apparatus up with what is truly a ludicrous amount of weight. How much? Even Maxx isn't sure. The posts are loaded to the ends with 45s, and then a few more are slid on to the padded handgrips. "It ends up being eight or nine plates a side," he guesses. That would be more than 800 pounds in plates, for those of you keeping score at home. Again, the reps are 20 or more constant-tension pulses in the mid-range of the rep.



where I didn't even feel like I could have a good workout if I didn't have them on," he says.

His warm-up on chest day before he even gets to his first exercise is two sets of 40-50 reps of cable triceps pushdowns, and a third set of 40-50 of overhead cable extensions. There is no lockout of the elbow and no emphasis on triceps contractions, as the sole purpose is to bathe the area in warmth and make it more pliable. Now let's look at how the 5'11" Haitian sensation who carries 265 pounds of ripped muscle on contest day trains his armor-plated pecs.



## FLAT BARBELL BENCH PRESS

After his upper chest has been pulverized with heavy incline presses, Maxx moves on to flat barbell bench presses for the mid-chest. Unlike most pros, he never touches dumbbells on chest day. "I found that with a barbell, the stronger I got, the bigger my chest grew," he begins. "But with dumbbells, no matter how heavy I could go with them, I never saw any results. So I stayed with the flat barbell bench press instead."

Many of today's bodybuilders avoid this movement like the plague, but Maxx feels he has figured out how to do it in a safer way. "I would never do the flat bench first, because then I would be using too much weight," he explains. "Doing it after my incline presses, I don't have to go as heavy."

In the off-season, he works up to five plates per side, or 495, while closer to a contest when he's lighter and leaner, 405 will be his maximum weight. That final, heaviest set is a long one, because Charles always makes it a drop set, getting 20 or more reps and then peeling a plate at a time until he is down to 135 for the final drop. The rep total can be anywhere from 75-100 or more, and the pump when it's all over is fully blown.




## STANDING MACHINE DIPS (NOT SHOWN)

Maxx's favorite lower chest movement is one he came up with a few years ago. "I always noticed that if I leaned forward as much as I could when doing dips, I felt it all in my lower pecs," he explains. "So one day, I tried to mimic that using the Hammer Strength dip machine, and it was perfect."

If you want to try it, this is what to do. Stand facing into the pad on the machine, and lean forward until your chest is balanced on top of the pad. Grasp the handles with the wide, pronated grip just like you would use when doing a bench press. Now push down until you feel the tension on the lower pecs. That's the section of the ROM you want to work in. Watching Maxx do these, his reps look even shorter than they do on his incline and flat presses. Yet this is the "sweet spot" he's found that nails his lower pecs just like a decline press.





**"I FOUND THAT WITH A BARBELL, THE STRONGER I GOT, THE BIGGER MY CHEST GREW. BUT WITH DUMBBELLS, NO MATTER HOW HEAVY I COULD GO WITH THEM, I NEVER SAW ANY RESULTS. SO I STAYED WITH THE FLAT BARBELL BENCH PRESS."**

### CHEST WORKOUT

Incline Barbell Press	4 x 20
Flat Barbell Bench Press	4-5 x 20
Standing Machine Dips	3 x 20-30
Seated Machine Press	4 x 20-25
Pec Flye Machine	3 x 20-30
Cable Crossovers	3 x 20-30

### TRAINING SPLIT\*

Sunday:	Hamstrings
Monday:	Back
Tuesday:	Chest
Wednesday:	Quadriceps
Thursday:	Shoulders
Friday:	Back
Saturday:	Quads

\*Maxx has not trained his arms for about two years, as they grow too easily.

### SEATED BENCH PRESS MACHINE

There's nothing fancy here. There are many versions of seated chest presses available in gyms. Even at Bev Francis Powerhouse Gym in Syosset, where Maxx calls home, they have an assortment. The one he prefers is a plate-loaded version made by the Flex Leverage series, in which the handles come together in front of you as you press. "This one gives me the best contractions, and the best pump," he notes. Four sets of 20-25 reps with the entire weight stack is the end of his pressing for the workout, and it's more than enough to make every last fiber in his pecs scream.





## CABLE CROSSOVERS

The final two movements in his chest workout are both isolated flye motions to work his inner chest. First, he does three sets on the pec flye machine. Maxx being Maxx, he does those in his own unique style. Instead of holding the handles, he gets his arms around the vertical movement arms, nestled in the crooks of his elbows with his hands free, and pushes together until his fists touch. As you might imagine, he uses the whole stack for all three sets.

After the pec flye machine, he moves on to the cable station to wrap up this epic pec blast with crossovers. Oddly enough, this is the only exercise in his chest workout where Maxx uses almost a complete range of motion. "At this point, at the end of the workout, I do want to feel a good stretch," he explains. "So I will go further back before coming together with the cables and squeezing my inner pecs." It's also the only time when you won't see Charles using superhuman weights. That's all been done in the two to three hours that preceded the cable crossovers.

## CONTEST HISTORY

2008 Eastern USA	Super Heavyweight Winner
2011 Atlantic States	Super Heavyweight Winner
2011 NPC Nationals	Second, Super Heavyweight
2012 USA Championships	Third, Super Heavyweight
2013 USA Championships	Super Heavyweight & Overall Champion
2014 New York Pro	Fifth Place
2014 Tampa Pro	Fourth Place
2015 New York Pro	Third Place



## THE SHORT ROM: IS IT REALLY WRONG?

Anyone who has ever watched Maxx Charles train chest, either in person or on video, has definitely noticed that his range of motion, aka ROM, is fairly short. He neither gets a full stretch nor a full contraction, instead working within a roughly six-inch stroke in the middle portion of the rep. Maxx has been blasted by critics ranging from exercise experts to anonymous teenage trolls for his rep style. The ironic thing is, inevitably, those who profess to use perfect form don't have anywhere near the pectoral development that Charles does. Their superior form, using a full range of motion, has failed to yield superior results. This begs the question, then: Is a full range of motion actually the best way to train? Not for Maxx. "I have tried using a full range of motion in the past," he begins. "Yet my chest was not responding and growing. I realized that when I locked out, I was losing tension in my chest. As I experimented, I found that as soon as my biceps were higher than my chest in any pressing movement, the stress shifted from my chest to my shoulders and arms." Maxx discovered that working in the mid-range of the rep allowed him both to maintain that critical tension and to use far heavier weights, and that combination soon led to new gains. His chest grew thicker and fuller as time went by, using his unique style. So while you may be able to argue that a full range of motion works best for you, it evidently doesn't work best for Maxx.

## UP NEXT?

It's his third season as a pro, and Maxx really wants to stand on the Mr. Olympia stage this fall. To do that, he needs to either win a show or score enough points to qualify. His next stop on the contest circuit will be the Tampa Pro, where he hopes to win and get that prized ticket to the O. He's pretty satisfied with his chest, arms and shoulders, but still wants more quad size and more detail in his back and hamstrings.

Getting back to what we were talking about at the start of this, it does seem that Maxx Charles goes about his training all wrong. He does too much in terms of volume, and his reps are so short at times that you can't even call them half-reps. Yet, look at his chest! It's clear that his methods have worked incredibly well for him. Who's to say that giving his style a try, at least for portions of your workout, won't yield startling results for you? If you have been using standard form with a full range of motion, and your chest still hasn't improved in a very long time, you have nothing to lose by giving the Maxx Charles style a try for yourself.

Instagram: [maxx\\_charles](#)  
Facebook: [Maxx Charles Athlete](#)

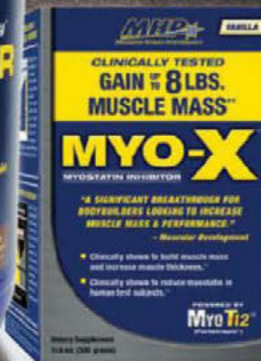




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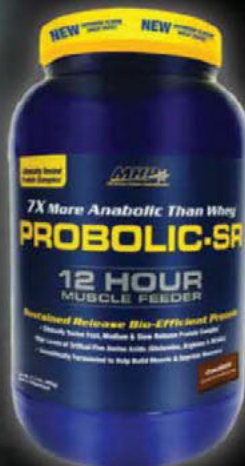


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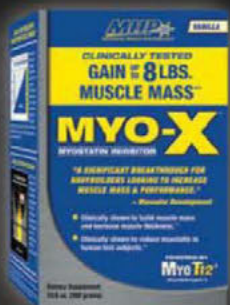


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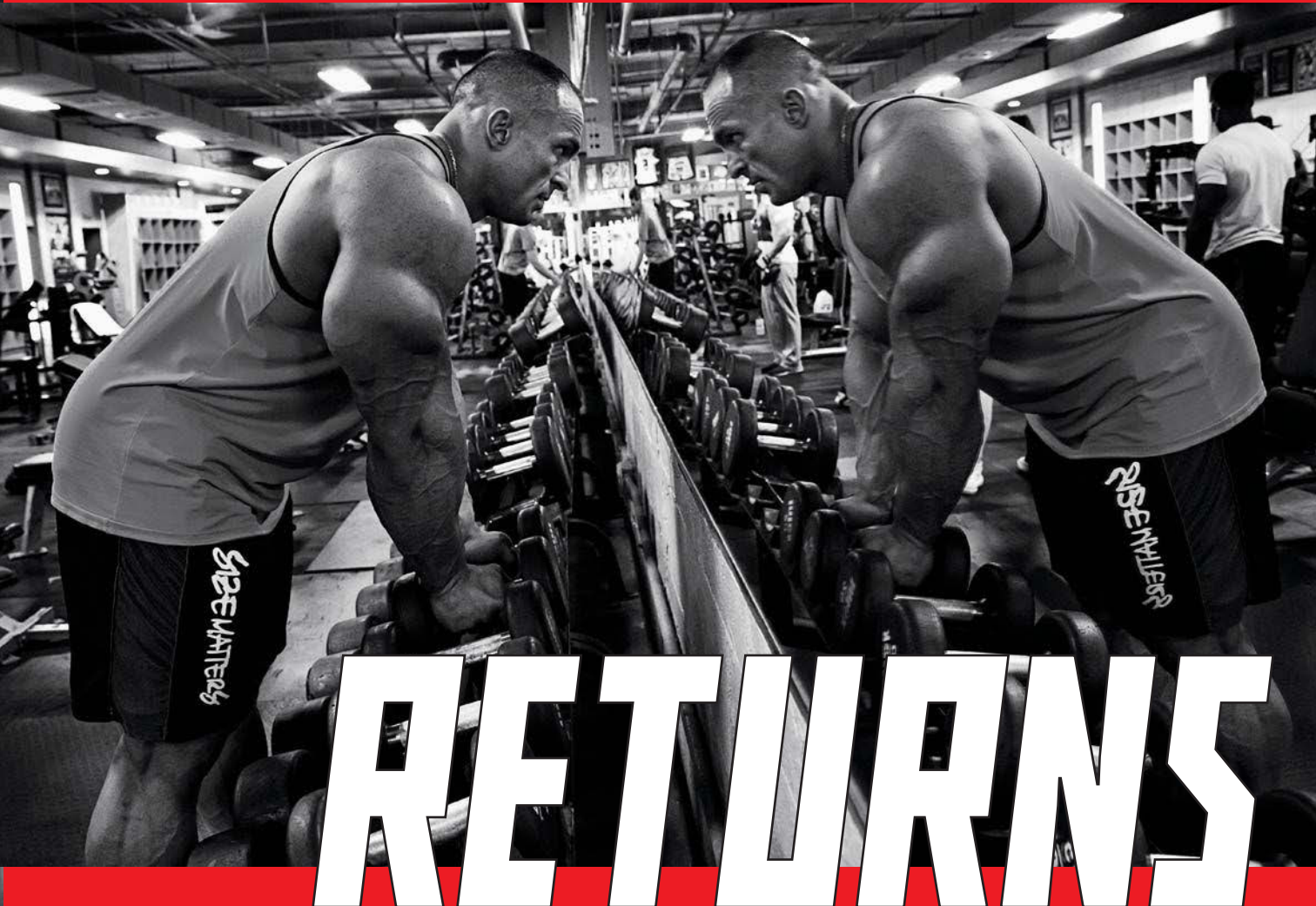




BY PETER MCGOUGH  
PHOTOGRAPHY BY IAN SPANIER



# FEDOROV

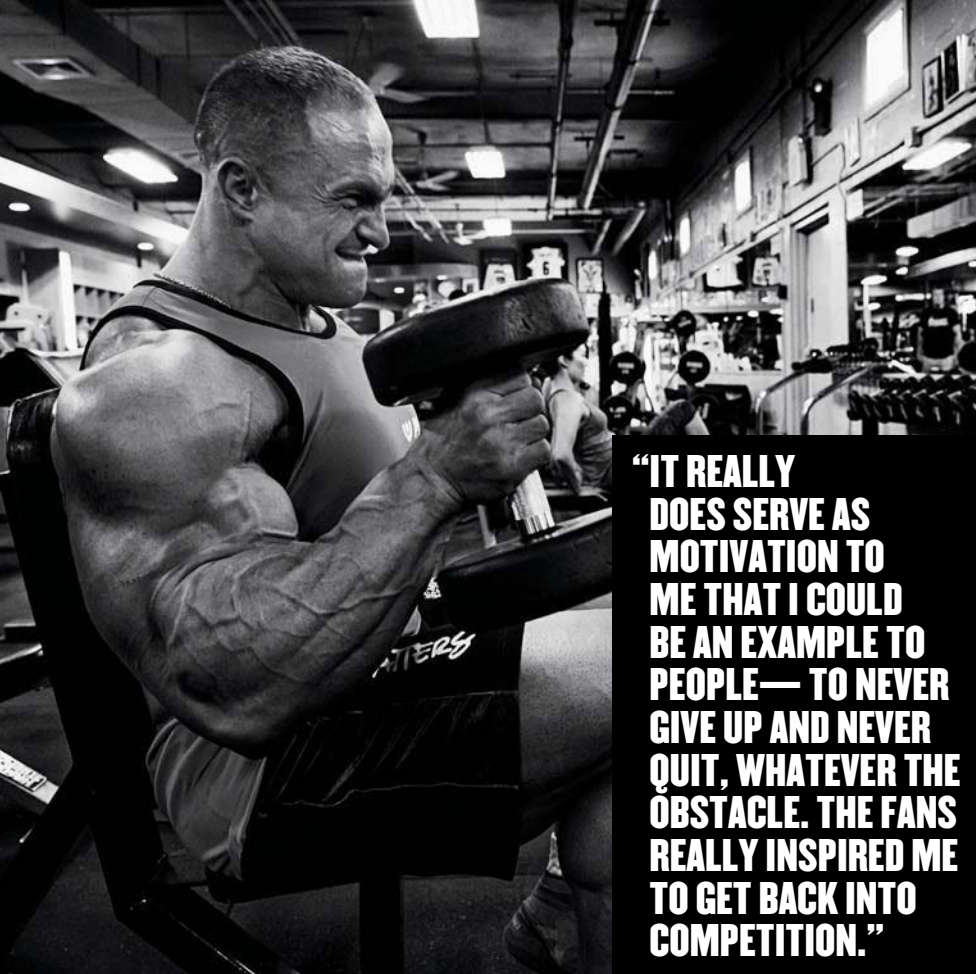


## TIPPED AS BODYBUILDING'S 'NEXT BIG THING' IN 2004, ALEX FEDOROV IS IN THE MIDST OF A REMARKABLE AND INSPIRING COMEBACK

June 3<sup>rd</sup>, 2003, was just another day at the proverbial office for Alex Fedorov. Having been a sensational winner of the European Championships in the spring, the 25-year-old was just under five months away from making his pro debut at the Russian Grand Prix. He walked into the locker room of the Yuzhnoe Gym in his hometown of St. Petersburg, Russia and prepared for chest day. He felt strong and confident. He duly bench-pressed 440 pounds for eight reps and knew that there was much more left in the tank. Working out with his father Anatoliy, as he always did, the bar was loaded to 485 pounds.

As the bar descended toward his chest, he recalls, "I heard a sound like a rubber band snapping and felt a sharp pain on my right side. The bar tilted to the right and my father tried to catch it, and in fact injured his arm quite badly as plates began slipping off the bar. When I got to the hospital, the doctors felt the injury wasn't terribly serious because I still had full range of motion. X-rays didn't give them any verification of what damage had been done, but after further examination it was found the damage was severe: I had torn my right pectoral muscle in four different places."





**“IT REALLY DOES SERVE AS MOTIVATION TO ME THAT I COULD BE AN EXAMPLE TO PEOPLE— TO NEVER GIVE UP AND NEVER QUIT, WHATEVER THE OBSTACLE. THE FANS REALLY INSPIRED ME TO GET BACK INTO COMPETITION.”**

He was facing major surgery, and typically for the three to four months after the surgery, he would be confined to simple rehab exercises.

From my experience with Alex, one thing is for sure: he's a warrior, and verifying that credential, he remarkably decided to go ahead and compete in the Russian Grand Prix of October 31. Thus, he duly lined up with an array of IFBB pros, including the top two from the previous week's Mr. Olympia shindig, Jay Cutler and Ronnie Coleman. At six feet and 270 pounds, Alex wasn't wanting for size and he was in crisp condition. He finished third behind the aforementioned duo, but many that day were of the thought that the 25-year-old had the potential to improve and mount a real channel challenge to Ronnie Coleman's Olympia throne. But that pec tear on that fateful day changed his life and his bodybuilding career forever.

## GRAVE DECISION

The Yuzhnoe Gym can never be confused with the swanky Hollywood fitness boutique in which Kim Kardashian exercises her assets. You want to practice deadlifts, then Alex's gym is for you because it's right in the middle of one of Russia's largest graveyards. Dorian Yates' Temple Gym is world renowned for its hardcore ambience, but the Yuzhnoe makes The Shadow's hangout seem like the Sistine Chapel. Its walls are mildewed and the air reeks with the odor of sweaty men lifting heavy weights. Despite its spectral setting

and raw surroundings, this is the gym Alex always wants to train in. There are other classier gyms in St. Petersburg; one even sponsors him and he will make appearances there and maybe train there once a week, but the Yuzhnoe is home to Alex.

Alex's father, Anatoliy, is a pioneer of Russian bodybuilding. Fedorov senior was born in 1950 and started bodybuilding in the late '60s when it was actually banned in Russia. He infused in his son a love for lifting

weights and marveled as his firstborn grew into being one of the most intimidating bodybuilders on the planet.

In the wake of his third place at the 2003 Russian Grand Prix, Alex was suddenly spoken about as bodybuilding's "next big thing." Nobody was really aware at the time that he had suffered a debilitating pec injury and radical and comprehensive surgery took place in January 2004. The thought was that he would compete at the 2004 Mr. Olympia, but that was not to be (see sidebar, "The Alex I Know").

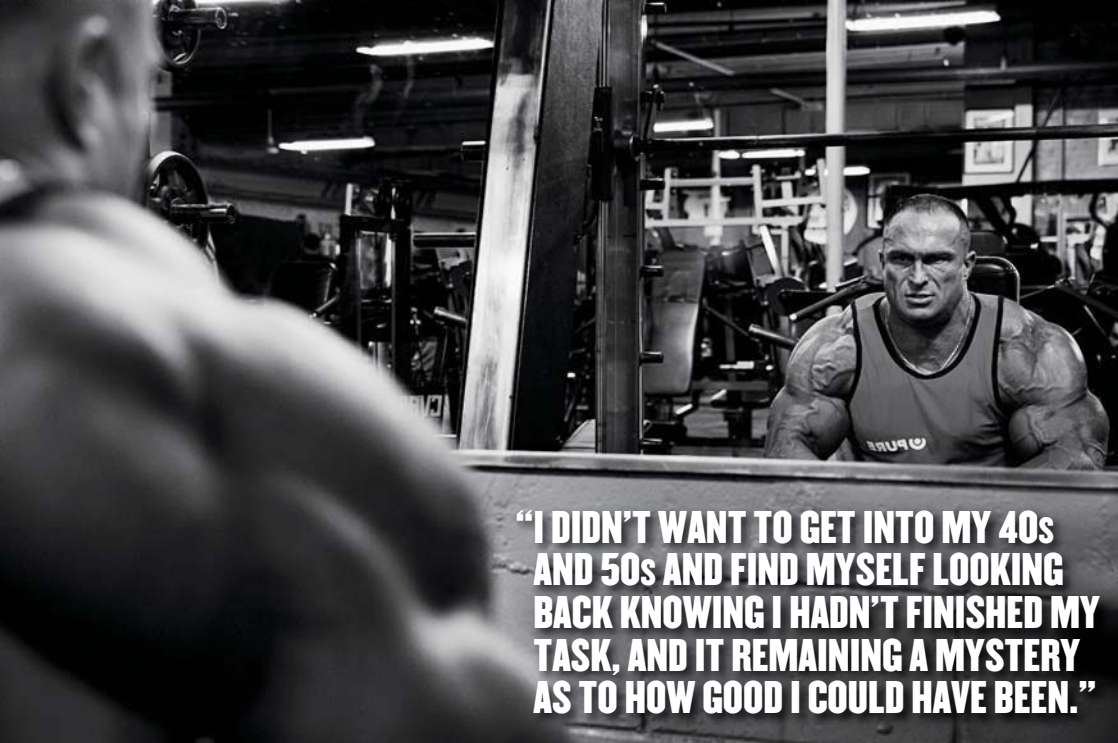
Alex bypassed that year's Olympia and instead entered the Russian Grand Prix, staged a week after the 2004 Sandow—his seventh—was awarded to Ronnie Coleman. He finished second at the Grand Prix but the red flags were flying, as the damage to his right pec was clearly obvious. His Russian Grand Prix placing entitled him to enter the 2005 Olympia, which he did—and way off, he finished out of the first 15. In 2006 he entered three contests: the New York Pro, the Austrian Grand Prix and the Dutch Grand Prix, where he finished 10<sup>th</sup>, 15<sup>th</sup>, and ninth respectively. That seemingly was all she wrote because Alex, while not declaring he was retired, was not talking about entering any further contests. The career of "the next big thing" was over at age 28.

## THE COMEBACK

Alex went back to being an ordinary mortal, his physique eventually being streamlined down to 200 pounds. And then on May 6, 2014, something almost magical happened. It was Alex's 36<sup>th</sup> birthday,







**“I DIDN'T WANT TO GET INTO MY 40s AND 50s AND FIND MYSELF LOOKING BACK KNOWING I HADN'T FINISHED MY TASK, AND IT REMAINING A MYSTERY AS TO HOW GOOD I COULD HAVE BEEN.”**

and with his social media links he was inundated with good wishes, many of them asking if he had any thoughts of making a comeback. Many of the well-wishers spoke about the influence he had on them. Some spoke of Alex's example of helping them to overcome drug or alcohol addiction, or enabling them to navigate a personal crisis. Alex's story of not giving into the pec tear inspired them. He remembers the effect such messages had on him: "Many of the people sending messages had overcome some crisis in life and were back in the gym training to whatever level

## THE ALEX I KNOW

Soon after Alex's January 2004 pec surgery, I finalized negotiations to sign the Russian wunderkind to a publishing contract and to access a work and travel visa so he could come to the USA. In the early summer of 2004 he started light training, and although his pushing movements were severely restricted, he stated he would be doing the 2004 Russian Grand Prix. I advised him to let the surgery heal and forget about competing until 2005. I even offered the bait of a 2005 Olympia special invite being arranged by the IFBB, saving him the qualifying process. But he was adamant that he would be at the Moscow muscelfest in November of 2004.

At the time Mikhael Goulyayev, Alex's friend and interpreter, explained to me that Alex had a "warrior" mentality. "He really lives for the contests. He wants to be on that Moscow stage to prove that the rumors that his career was over were untrue."

Fedorov did compete at the 2004 Russian Grand Prix. He wasn't as sharp as 2003, but he finished second to Ronnie Coleman and qualified for the 2005 Olympia.

I finally met him at the Claim Jumper restaurant in Fullerton, California. It was the day following Thanksgiving 2004, and I had arranged to meet Alex there after a photo shoot. Also present were Milos Sarcev and my much-better half, Anne. Five Europeans gathered together on an American holiday, the only turkey in sight being the one who would pick up the bill.

Alex's insistence on competing in the 2004 Russian Grand Prix (a week after the Olympia) had puzzled me ever since he first insisted he wanted to do it. Now on that warm sunny Southern California day, as he surveyed two large filet mignon steaks, he got ready to tell me why he really kept his Moscow appointment.

He began, via Goulyayev, "You offered me an Olympia special invite for 2005, and I am grateful for the thought. But I swore to myself that if I ever stepped on the Olympia stage, I wanted to earn it, not have a free ride in. That's why, with all the risks, I did the Moscow contest, so that I could qualify by right. I wanted to stand next to all the other guys as an equal, not as someone given a special favor."

Those words spoken over a decade ago deeply impressed this often-cynical scribe, and spoke volumes for the man's character. His return to competition and his reasons for doing so are equally impressive. Bottom line, Alex Fedorov is a very good bodybuilder but at his core he is a very good, very good, man.

*Author's note: I would like to thank Mikhail Goulyayev, Alex's longtime friend and advisor, for performing interpreter duties which made this story possible. I have known Alex and Mikhael for 12 years, and they are both upstanding and friendly gentlemen.*

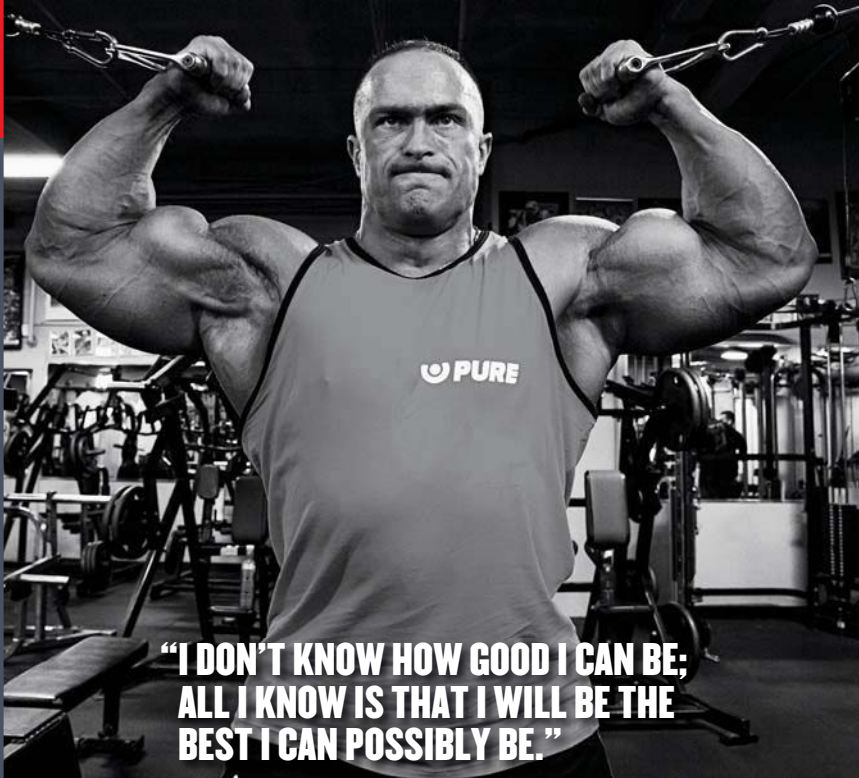




they aspire to. It really does serve as motivation to me that I could be an example to people like that—to never give up and never quit, whatever the obstacle. The fans really inspired me to get back into competition.” (How appropriate that a comeback would be generated by thoughts of “Many Happy Returns.”)

It was a watershed moment that consumed him, made him realize he was not forgotten, that people still remembered the impact he made nine years before. Also deep, deep, inside had lingered a latent desire that one day he would compete again. He states, “Even though I hadn’t competed for those seven years, I knew that one day I would have to go back to finish what I started, to see how good I could be in spite of the torn pec. I didn’t want to get into my 40s and 50s and find myself looking back knowing I hadn’t finished my task, and it remaining a mystery as to how good I could have been.”

In May 2014, a 200-pound Alex began working out again with competition in his mind. He focused on the Russian Grand Prix being staged in six months, and entered the contest at around 270 pounds to earn an eighth-place finish. Undeterred, he set his sights on the 2015 Europa Show of Champions being staged in Orlando, scheduled for May 1<sup>st</sup> and 2<sup>nd</sup>. As he came onstage for the Friday prejudging, he generated a collective WTF gasp from the audience. At 290 pounds, he was friggin’ huge with massive legs, humongous arms and a back that went on forever. Although his waist was in need of streamlining and the pec damage was evident, his appearance was showstopping. As impressive as he was on Friday, he was even more



**“I DON’T KNOW HOW GOOD I CAN BE;  
ALL I KNOW IS THAT I WILL BE THE  
BEST I CAN POSSIBLY BE.”**

impressive at the Saturday finals. He’d flushed out some excess water and really sharpened up, particularly in the quads, where his deep separation and sheer size was cartoonish. He eventually finished third. A week later at the New York Pro, he slipped to seventh.

Of his 2015 appearances, he asserts, “I’m extremely happy about my return and the form I showed. I have a long way to go but I’d only been back in the gym for 11 months prior to these shows. My task each day is to get better and better and gain Olympic qualification. It doesn’t matter to me whether I get that qualification by winning first place at a show or by collecting enough points through the qualification system. I know I have to be harder and more conditioned, but I will get better.”





## THE ROAD FORWARD

From his St. Petersburg base, Alex is focused on “getting better” and enjoying the fruits of his family life. He has been married to his wife, Natalia, for 15 years and they have three children: Nika is 10, and in May 2014, Natalia gave birth to twins— a boy, Artemiy and a girl, Junia. He is back in the gym training with his father, of whom he says, “Nobody knows my body better than my father ... no one knows better than him how to improve my physique.” As for Fedorov senior, he says of his son’s bodybuilding prowess: “One should not concern himself too much with victory, because it is only for a short moment. However, the road to victory is much more fulfilling, because it can span a lifetime.”

As for future plans, Alex is keen to enter contests later in the year. “I would like to spend the summer improving and refining my physique, and then enter shows like the Arnold Classic in Spain and the Prague Pro show. I want to use those contests as a barometer of how much I have improved this year. As for what sort of physique I will eventually develop, I have no illusions. At 37, my body is different than it was when I was 25, and I have a different mindset. I am very realistic about what I can achieve. I don’t know how good I can be; all I know is that I will be the best I can possibly be. My goal is to achieve quality muscle, to make my mass harder and sharper.”

## WHAT MIGHT HAVE BEEN?

It’s difficult when considering the trajectory of his life, not to ask Alex if in some way he feels cheated. In September 2003 prior to the injury, he was being seen as a possible future Mr. Olympia, and that all went up in smoke in the span of one disruptive rep. Does he feel cheated and ponder on what might have been?



**AS HE CAME ONSTAGE FOR THE FRIDAY PREJUDGING, HE GENERATED A COLLECTIVE WTF GASP FROM THE AUDIENCE. AT 290 POUNDS, HE WAS FRIGGIN’ HUGE WITH MASSIVE LEGS, HUMONGOUS ARMS AND A BACK THAT WENT ON FOREVER.**



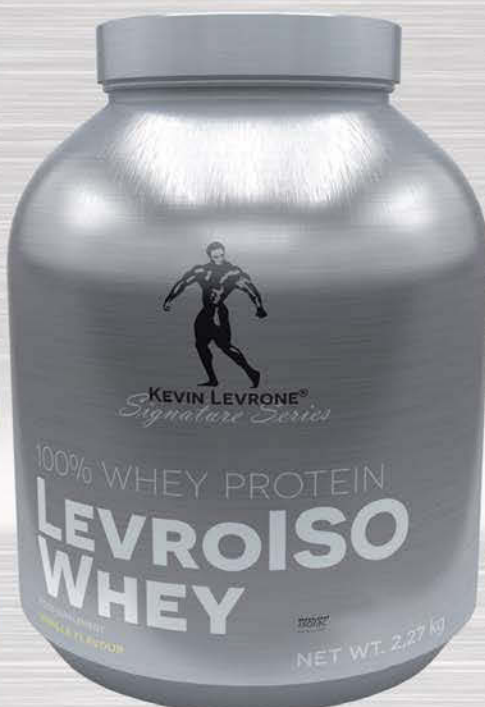
He is remarkably philosophical in answering the question. “I’m a deeply religious man, and I think that there is a plan for everybody,” Alex replied. “Although I would not have wished it on myself, the pec tear was in my plan to test me. I don’t dwell on it in terms of feeling sorry for myself or that life is unfair. Instead of looking upon the injury as a complete disaster, I tend to look upon it as the main motivating force driving me on now.

“I want to show the bodybuilding world, I want to prove to myself, that I can still be an Olympian bodybuilder despite the injury. I’m driven by the kind thoughts and wishes of all those fans that want to see me back and want to see me do well. Pursuing this bodybuilding dream is something I must do. If you have a gift or a talent, you must maximize it. I look upon the talent I’ve been given for bodybuilding not as a gift for me to use or not use as I please. I look upon it my duty, as my mission in life. And I will drive on to see how far my gift and my dream can take me.”





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It began as an ordinary day in the fall of 2010, only a few weeks after Jay Cutler was crowned the world's best bodybuilder for the final time. As the holidays approached, NPC President Jim Manion was preparing to make the kind of announcement that would make the day a bit less ordinary, igniting debates and opening the door for an entirely new kind of *bodybuilder*. Word traveled fast, making its way from city to city, from gym to gym and across the Internet. They called it the Men's Physique Division. Some laughed at the idea, including MD Senior Writer Ron Harris, who wrote, "For most of us bodybuilders, the emergence of Men's Physique was, to put it bluntly, a joke—guys in board shorts hitting model poses? I assumed it would be a failed experiment. Obviously I was about as wrong as wrong could be." A new division allowing men to compete while wearing knee-length shorts! Was this really happening?

### THE MEETING AND THE ANNOUNCEMENT

The NPC's Board of Governors Meeting is the organization's annual gathering of leaders, an opportunity to discuss various proposals for the upcoming contest season. Back in 2010, the meeting took place on a November morning at the Hyatt Regency in Downtown Atlanta, and for legions of aesthetically blessed, aspiring competitors, this was the day that gave way to a decision that would change their lives.

The press release began with the announcement, "*Beginning in 2011 a new division for men will be introduced— Men's Physique.*" Some scoffed at the idea. Laughter could be heard from those who refused to embrace the merits of this new type of athlete.

The press release laid out all the details: "*Judges will be looking for fit contestants who display proper shape and symmetry combined with muscularity and overall condition. This is not a bodybuilding contest so extreme muscularity should be marked down.*" As we read further, a clearer picture was painted: "*Contestants will be asked to walk in board shorts (shorts must be just above the knee in length and can be one inch below the belly button). Competitors will enter the stage without a shirt and barefoot. Competitors will walk to the center of the stage alone and perform quarter turns with optional pose of hand on hip or hand in pocket, face the judges as directed, then proceed to the side of the stage.*"

### A NEW TYPE OF COMPETITOR

From a business standpoint, the arrival of the new division was a stroke of genius. Physiques resembling those celebrated on the shores of South Beach were suddenly given the opportunity to compete for championships, eventually making their way to the Olympia stage. It's simple math. There are only a limited number of men courageous enough to walk across a stage wearing a standard bodybuilder bikini bottom, the kind that leaves little to the imagination. The traditional bodybuilding division requires the development of the *entire* physique—complete with stage-worthy legs. A Men's Physique competitor, on the other hand, enjoys the luxury of board shorts, the kind made popular by surfers. This new division was the NPC's open invitation to thousands of men with well-built upper bodies, lacking the quad and hamstring development needed to fit in as a bodybuilder. The floodgates had opened.

# the Future of Bodybuilding





# ilding?

BY DAN SOLOMON



## THE IMPACT OF MPD

As the Men's Physique Division (MPD) closes out its fifth year, there is no denying its success or its popularity. NPC amateur events are enjoying record-breaking participation, fueled largely by the sport's fastest-growing division. Men's Physique competitors are beginning to land on the covers of the industry's top magazines, real estate that was once monopolized by champion bodybuilders. Physique stars, while building fan bases, have become appealing to supplement companies looking to attract a less hardcore customer. Ron Harris explains, "We're at the point where it's common to see two to three times the number of men in the MPD division compared to bodybuilding. The trend doesn't seem to be slowing down. You even see the popularity of MPD reflected in print ads for supplements. These used to be the domain of the biggest and freakiest male bodybuilders. Now, products are pitched using smaller, more streamlined MPD athletes."

## SHOULD BODYBUILDERS FEEL THREATENED?

The only thing growing faster than the number of MPD competitors is the size and overall muscularity of the individual participants. Shoulders are getting fuller, arms bigger and backs wider. According to some observers, many of the top professional Physique competitors are beginning to build physiques that may one day rival some of their bodybuilder counterparts. MD Senior Editor Peter McGough is among those who have noticed the trend. "I think the big question at the moment is whether the MPD guys are getting too muscular," McGough said. "Are they pushing the division into bodybuilding territory?"

Hall of Fame bodybuilder Shawn Ray is a bit less enthusiastic about Men's Physique, declaring, "I personally have no real interest in Men's Physique competition, as a fan or as a spectator. That's not to take away from the legitimacy of its importance and impact on the sport. Clearly, it is highly popular among the athletes as an alternative to the extremes of bodybuilding, allowing for more athletes to participate."

## THE FUTURE

At first glance, it would seem ridiculous to suggest that any of this would pose a legitimate threat to the future of bodybuilding, a sport built on the shoulders of giants named Arnold and Ronnie. But according to Ron Harris, the threat is real. "I see the Men's Physique Division as being a threat to the future of bodybuilding for the simple fact that it's so much more appealing to so many more young men out there in the gyms," Harris said. "As much as I love bodybuilding, even I have to admit that the look of today is one that is neither attainable nor desirable to the average guy."



Harris continues, "To build a physique capable of doing well at the highest levels of bodybuilding today takes years. It also requires enormous amounts of food to build all that muscle, and let's be real— not a small amount of drugs, either. Most people in the general public see an MPD body and find it appealing. Men would love to look like that, with the wide shoulders, big arms, six-pack and slim waist. Most women find a body like that very sexy. Contrast that with a physique so thickly muscled, it's amazing the guy can even move. He has thighs so huge they rub

***This new division was the NPC's open invitation to thousands of men with well-built upper bodies, lacking the quad and hamstring development needed to fit in as a bodybuilder. The floodgates had opened.***

together when he walks. Most of the year, he is bloated with a red face, and his gut might look pregnant. Who wants to look like that? Very few men. And very few women find that sexy."

Retired pro bodybuilder Bob Cicherillo has a much different opinion. "While the actual numbers of Men's Physique competitors may be greater, the popularity and fan base is still solidly in the bodybuilding arena," Cicherillo points out. "The two divisions are not competing against each other, as is commonly thought. I wanted to be a bodybuilder when I was just starting out. I looked at other bodybuilders for inspiration, for their look, their training. Getting in good shape was of no interest to me. I liked the extreme look of a pro bodybuilder. People gravitate toward what they have an interest in. Just because there are many types of music, doesn't mean it sways you from whatever it is you tend to like."

While Peter McGough doesn't see traditional bodybuilding going away, he does acknowledge a potential shift in market share.

"I don't think Men's Physique will overtake, or even diminish dramatically, interest in the men's bodybuilding class," McGough said. "Increasingly, over the past decade or so, bodybuilding has become marginalized and its audience is confined to those thirsting to see extreme, ripped-to-shreds, humongous muscle. There will always be that audience; those wanting to see the freakiest, most muscular physiques on the planet. They won't transfer their affections to guys training within a limited development objective."

Ron Harris, an accomplished bodybuilder in his own right, offered up this word of caution: "Considering it's all about incentives in this world of ours, MPD has a lot more to offer than bodybuilding. For that reason, it's no wonder so many young men are turning to it for a competitive avenue and bypassing bodybuilding. Bodybuilding will always exist, I am confident of that. But it's definitely moving toward becoming a sideshow for the big freaks while the newer divisions emerge as the main events."

## CAN WE REALLY COMPARE THEM?

How can we possibly compare a world-class bodybuilder to a physique competitor? Guys like Phil Heath and Kai Greene have spent years testing the boundaries; pushing their physiques to places few imagined possible. Is there anything in a physique lineup that rivals the jaw-dropping proportions of an Olympia-caliber bodybuilder?

Shawn Ray sees no comparison. "In my opinion, there is no comparing the two divisions in terms of popularity. The Physique numbers are bigger simply because more people can actually jump onstage in board shorts. I believe they will both continue to coexist, much like the Bikini division is no real threat to Figure competition— to each his own. I'm a Hall of Fame bodybuilder and I'm interested in bodybuilding! The popularity of Men's Physique hasn't deterred my interest simply because the participation numbers are higher."

On that ordinary day in the fall of 2010, the Men's Physique Division was introduced. Some laughed, while others predicted its failure. Five years later, as we contemplate the future of bodybuilding, we are left with only one question: Who's laughing now? ■





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# TESTOSTERONE AND SEXUAL PERFORMANCE

**A**nimal studies and media headlines have colored the image of testosterone as a barbaric, orgy-inducing, manic-phase hormone that causes civil men to pillage and destroy in the throes of lust-driven rage while sporting anatomically disproportionate erections.<sup>1-4</sup> If such behavior were so dependent upon über-high testosterone surges, then one would conclude that most video game players and developers are spiking testosterone levels that would shame Mr. Olympia contestants.<sup>5</sup>

Before there was interest in using testosterone or anabolic-androgenic steroids (AAS) to promote muscle mass or strength, sages and kings searched desperately for the “male factor” that would restore, enhance or prolong sexual performance.<sup>6</sup> Bizarre recipes containing dried genitals from predatory and promiscuous animals or any plant that is vagina- or penis-shaped abound in ancient literature. It is little different from today’s focus, where erectile dysfunction treatment is one of the most profitable categories in pharmaceutical sales, production and research; muscle hypertrophy and strength enhancement through exogenous factors is essentially taboo, neglected at best.

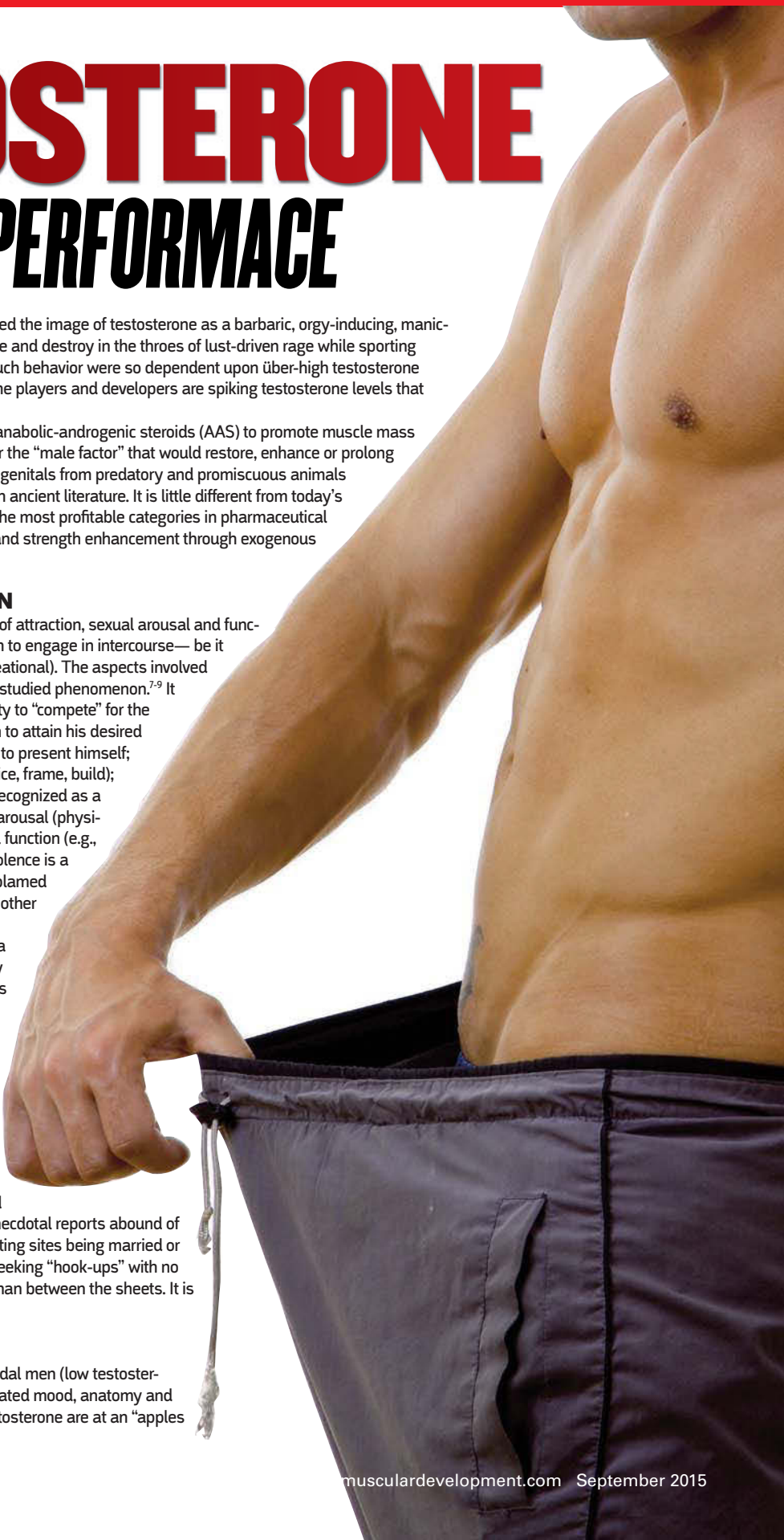
## RESEARCHERS RISE TO THE OCCASION

The essence of testosterone research in the fields of attraction, sexual arousal and function, is that testosterone promotes and enables a man to engage in intercourse— be it for enjoyment (recreational) or family planning (procreational). The aspects involved are more than “getting a boner,” though that is a well-studied phenomenon.<sup>7-9</sup> It begins with the effect of testosterone on a man’s ability to “compete” for the attention of a suitable mate; his desire and motivation to attain his desired mate’s interest; confidence and self-esteem sufficient to present himself; anthropometric features of masculinity (e.g., facial, voice, frame, build); dominance as it relates to his area of expertise (e.g., recognized as a leader or authority); libido and sexual desire; ease of arousal (physiologic as well as genital); erectile function; and sexual function (e.g., avoiding premature or delayed ejaculation). Sexual violence is a different topic, tragically present in society and often blamed on “testosterone,” though the research suggests that other associations are much more relevant.

Sure, life is a lot easier if sex is just about “getting a boner,” but most of us don’t live a promiscuous, reality show lifestyle. Further, social conditioning and cues, as well as psychological and relationship issues complicate the sexual act to the point where many individuals suffer anxiety entering or exiting relationships. In Japan, this has led to a nationwide disinterest in sex with a partner, or at all— a condition called *sekkusu shinai shōkōgun* or “celibacy syndrome.”<sup>10</sup> In the United States, this has encouraged the trend among young adults and adolescents to “hook up” rather than attempt to experience sexual intercourse as part of a relationship. Hypersexuality is associated with personal distress and functional impairment.<sup>11</sup> Anecdotal reports abound of a frighteningly high number of applicants to online dating sites being married or in a “committed relationship” and seeking affairs, or seeking “hook-ups” with no intention of developing the relationships any further than between the sheets. It is not a new thing.<sup>12</sup>

## BODY, MIND AND LIBIDO

Comparing the sexual disadvantages of hypogonadal men (low testosterone) with the research on testosterone’s effects on related mood, anatomy and physiology, it is clear that men with below normal testosterone are at an “apples





to apples" disadvantage to men with normal or slightly supraphysiologic testosterone. This is particularly evident in those who suffered from low testosterone prior to birth or from an early age due to genetic conditions, toxic exposure, trauma or other causes.

For the sake of clarity, consider the issues in general terms: physical development—the body; mood and cognitive effects—the mind; sexual desire and arousal—the libido; erectile and ejaculatory function—the “package.”

Testosterone shapes the physical development of the fetus early in pregnancy, resulting in genital development, mental response to stimuli and programming for later physiologic response to hormonal, metabolic or environmental cues. The development of the penis as a distinctly male structure begins in the seventh week of pregnancy, and continues until approximately the 17th week.<sup>13</sup> This is the time that the fetus begins to produce testosterone and the androgenic metabolite DHT. These hormones are responsible for the development of the penile erectile tissue, scrotum and urethral opening—the “hole” that urine and ejaculate exit.

One issue that is drastically “under the radar” is the effect of endocrine disruptors on the developing fetus in humans. It has been shown that these chemicals, present in our water supply, food packaging, food products and other environmental sources, affect the receptors that respond to estrogens and testosterone. There is observational data suggesting this has negatively affected the development of the human fetus. In addition, animal and tracking data shows that men produce less testosterone than prior generations.<sup>14-17</sup>

**Testosterone is a sex steroid hormone, and has critical functions in that aspect of life for nearly all men.**

## PENILE SIZE AND TESTOSTERONE

Two conditions involving penile size or structure relate (and respond) to testosterone—micropenis and hypospadias. Micropenis is what it sounds like, an abnormally undersized penis, commonly between one-half to one inch in length. Hypospadias is when the urethral opening is not near the end of the penis, but on the underside somewhere closer to the body. Both conditions are treated with testosterone in children, with the greatest response during the infancy or preschool years. With treatment, adult penile length averages 10 centimeters (four inches stretched length, the equivalent of the erect length), whereas “normal” men have an average stretched penile length of 12.4 centimeters (five inches).<sup>18</sup> Yes, there is for the lifetime of most males an interest in penile measurement standards, due to the social reward of being “well hung.” Anxiety about genital size causes many men great distress, and it is not restricted to the Western culture. A sample of 367 men in the military between ages 21 and 40 revealed that “genital self-image” (no, that is not a crotch-selfie posted on social media) was strongly associated with sexual anxiety and erectile dysfunction.<sup>19</sup> A related study on the same group determined that almost nine percent in this group of young to middle-aged adults suffered sexual performance problems, and one-third of all men reported experiencing erectile dysfunction.<sup>20</sup> Clearly, penis size affects not only a man’s actual dimensions, but can also greatly impact his ability to enjoy and perform sexually. This affects not only him, but also his spouse/partner.

Testosterone does not have much additional effect on adult penis size. If it did, the Mr. Olympia competitors would not be wearing those posing trunks onstage. However, testosterone deficiency can reduce the girth and rigidity of the penis. In part, this happens because smooth muscle cells that participate in maintaining an erection are replaced with fat cells.<sup>21</sup> Most people are conditioned to think of Viagra-like drugs (PDE5 inhibitors) to treat erectile dysfunction. Interestingly, PDE5i

drugs raise testosterone in addition to dilating blood vessels, and some people still do not respond to PDE5i

drugs without testosterone treatment.<sup>22</sup> Raising testosterone within the “normal range” increases the vasodilatory (increasing blood flow) signaling system called eNOS. However, this effect is lost with supraphysiologic testosterone or DHT dosing.<sup>23</sup> This may account for the reports of erectile dysfunction in some individuals misusing anabolic steroids in concentrations well above “normal.”

## OTHER PROBLEMS DOWN UNDER

Another sexual aspect fascinating to most is ejaculation; an act filled with intense physical, mental and emotional effect. Ejaculation occurs with various delay and stimulation, even for the same person. There is a typical duration of intercourse prior to ejaculating, contrary to locker room bragging about marathon sessions of intercourse. According to published research, the average man ejaculates approximately seven minutes after initiating intercourse.<sup>24</sup> Premature ejaculation, defined as ejaculating quicker than desired and causing distress (within one to two minutes or less), affects between 15 and 20 percent of all adult men.<sup>24-26</sup> Various treatments for premature ejaculation are underway, including topical anesthetics and PDE5i drugs.<sup>27</sup>

One might imagine that premature ejaculators have low testosterone, given the self-imposed shame associated with the condition. However, it is the opposite—they have higher (normal) testosterone; and delayed ejaculation can be a sign of testosterone deficiency.<sup>28,29</sup> In terms of success as a breeder, those who can complete the act quickly are more likely not to be interrupted by hostile competitors (or a cellphone nowadays), and may be able to “rise to the occasion” again more rapidly.

Attraction is based upon one person’s appreciation of another’s physical appearance, implied health and potential, and demeanor. Most research has looked at how women rate a man’s appearance or attraction. It should be of little surprise that there is a lot of variability in response, but some general trends are present. Women are attracted to a man with masculine facial features, voice, broad shoulders, a narrow waist and the implied ability to be healthy and able to work. This is particularly true if they are interested in uncommitted sexual relationships.<sup>30</sup> These features all





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# TESTOSTERONE

reflect testosterone's effect during maturation, as anyone who has had a teenager going through the physical changes of adolescence can attest. Muscle building requires substantially higher testosterone than the average level, so a well-developed body reflects optimally functioning testes.

## AROUSAL, DESIRE AND SEXUAL PROGRESSION

Testosterone is involved in providing a man the equipment, ability and programming to perform sexually. The last ingredient is desire, or becoming aroused. Arousal is often defined as having an erection in a sexual context. However, arousal begins with signs that precede the onset of an erection many times, in underappreciated ways. Animal studies depend upon certain "mating calls" or the production of pheromones. Though it is not as well studied in humans, arousal is the most testosterone-dependent feature of the sexual progression. Based on animal data, it appears that the ability to develop an erection, and "mount" a

sexually receptive female is well preserved, even in males with below-normal testosterone. However, being in a "sexy" environment, in and of itself, will not induce arousal as easily when testosterone is low.<sup>31</sup> It is a consideration in diagnosing men with testosterone deficiency. Humans are socially conditioned, and respond to cues that overcome hormonal deficiencies at times. Lack of libido and difficulty in becoming aroused are signs of testosterone deficiency, but many men will not recognize the change as it is insidious (i.e., subtle or slowly progressing), and they develop a routine with a partner of Saturday night sex or whatever as a scheduled event. The arousal is replaced with an expectation based upon cues.

Testosterone is a sex steroid hormone, and has critical functions in that aspect of life for nearly all men. The muscle building and body composition effects are not necessarily relevant to perhaps a majority of adults. However, without adequate testosterone, a highly valued component of life, relationships, and pleasure are detrimentally affected. ■

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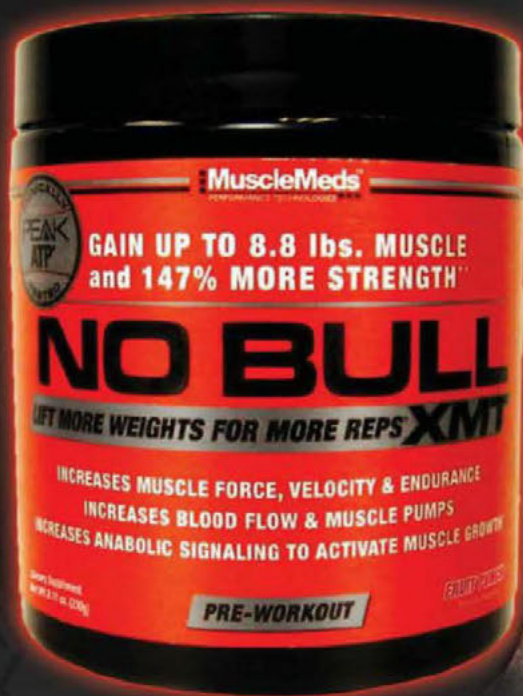


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# REP OUT FOR STRENGTH

Effective strength training typically involves lifting heavy weights at approximately 80 to 100 percent of your one-repetition maximum (1RM) within the two- to five-repetition range. This level of intensity is ideal for strength gains because it preferentially activates fast-twitch muscle fibers. Fast-twitch fibers do exactly what the name implies, contract faster, giving them the ability to generate much more force, or strength, than the other major type of muscle fiber, slow-twitch.

In addition to fast-twitch fibers generating more strength, the recruitment of fast-twitch fibers stimulates anabolic-signaling proteins, such as mTOR, more potently—increasing muscle protein synthesis to a greater degree, ultimately resulting in a greater capacity for muscle growth.<sup>1</sup> Altogether, this makes the recruitment of fast-twitch fibers an essential requirement to maximize muscle hypertrophy and strength in response to weight training.

On the other hand, slow-twitch muscle fibers generate considerably lower amounts of force and don't grow anywhere near as well as fast-twitch muscle fibers do, making them a suboptimal target for weight-training protocols striving to increase muscle size and strength.<sup>2</sup> Consequently, attempts have been made within the scientific community to identify novel training techniques that more potently activate fast-twitch muscle fibers, promoting more robust gains in muscle growth and strength.

## KAATSU TRAINING TRIGGERS STRENGTH WHILE USING LIGHT WEIGHTS

While exercise intensity, i.e., heavy weight, strongly stimulates muscle strength by activating the more powerful fast-twitch muscle fibers, there is good evidence indicating that other types of stimuli, such as metabolic stress, can also trigger extensive strength gains—

in large part by recruiting fast-twitch muscle fibers. This effect has clearly been shown in earlier studies investigating the Kaatsu training method. This mode of training requires lifting lighter loads of roughly 30 percent of your 1RM to muscle failure while restricting blood flow to the exercised muscle groups.



**No serious lifter hits heavy weights all year long.**

The restricted blood flow during Kaatsu training causes the muscle cell to produce energy without oxygen, or anaerobically. This preferentially activates fast-twitch fibers over slow-twitch fibers, because fast-twitch muscle fibers prefer anaerobic respiration over aerobic respiration.<sup>3,4</sup> In addition, the greater level of anaerobic respiration increases metabolic stress by producing more lactic acid, which rapidly decreases the muscle cell's ability to contract. As a result, additional fast-twitch muscle cells are

activated in order to maintain muscular contraction, effectively increasing fast-twitch fiber activity. In fact, several studies have demonstrated that Kaatsu training increases muscle activation to levels found when performing high-intensity training.<sup>5,6,7</sup> Furthermore, this form of training has also been shown to produce considerable gains in size and strength<sup>8,9</sup>, despite using such a low level of intensity.

So taking everything into consideration, it seems that the enhanced recruitment of fast-twitch fibers caused by the added metabolic stress induced during Kaatsu training is the primary reason why this type of exercise triggers a very potent hypertrophic response.

## PRE-EXHAUST WEAKER MUSCLE FIBERS BY REPPING-OUT FIRST

Since different training methods, such as Kaatsu training, specifically increase fast-twitch muscle fiber recruitment by a different mechanism that doesn't involve the use of heavy weights and, more importantly, results in considerable gains in size and strength, a group of scientists at North University in Brazil investigated another training approach to see if it too could increase fast-twitch muscle fiber recruitment.<sup>10</sup>

This approach used by the Brazilian scientists boosts fast-twitch fiber activity in a somewhat counterintuitive way, by exclusively pre-exhausting slow-twitch muscle fibers before performing sets with heavier weight. It accomplishes this with an initial set performed to exhaustion with very light weight, which preponderantly activates, and therefore exhausts, only slow-twitch muscle fibers. The pre-exhaustion of the slow-twitch fibers is key because normally, slow- and fast-twitch muscle fibers are both activated during the early stages of most lifts when the intensity level is relatively low. This, of course, effectively lowers the recruitment of fast-twitch fibers, because the slow-twitch muscle cells are contributing to some degree to the overall force production of the muscle, meaning less fast-twitch activity is necessary. Therefore, the ability of this approach to pre-exhaust slow-twitch fibers, thus mitigating their contribution to contraction, should plausibly increase fast-twitch fiber activation. This effect will be even more evident if all subsequent sets performed after pre-exhausting the slow-twitch fibers are done with heavier weights which, as previously mentioned, predominantly recruits fast-twitch muscle.

To see if they could induce this effect, Aguiar et al.<sup>10</sup> had test subjects complete



an initial set of knee extensions to complete exhaustion, using only 20 percent of their 1RM to specifically pre-exhaust slow-twitch muscle fiber fatigue. The test subjects then did several sets of knee extensions at high intensity. After eight weeks of training with this approach, each subject had their strength tested with a 1RM lift and their muscles probed with an MRI machine to visualize any newly formed muscle mass.

The results of the study clearly showed that the group performing the pre-exhaustion set experienced a much greater increase in muscle growth, along with a superior increase in their 1RM, relative to the control group that did no pre-exhaustion work. Altogether, this study demonstrated that an initial set to exhaustion with very light weight conceivably exhausted a significant percentage of slow-twitch fibers within the target muscle groups, which likely resulted in the additional recruitment of fast-twitch muscle fibers, ultimately promoting superior increases in muscle hypertrophy and strength.

In conclusion, the use of unconventional training approaches that more productively trigger fast-twitch muscle fiber activity should more potentially promote hypertrophy and strength increases, even without the use of heavy weights in some instances.

Furthermore, the use of these unorthodox training methods calls for the acceptance of a few nontraditional concepts on the subject of weight training, such as the notion that the use of heavy weights is absolutely required for strength gains.

Now, don't get me wrong—I'm not saying that heavy weight training is unimportant. In fact, it is definitely the best method for strength development. However, no serious lifter hits heavy weights all year long. So, during your next deloading phase or just to change things up a bit, you might want to rep out with light weight before hitting heavier weight—in order to more forcefully trigger fast-twitch muscle fibers and boost gains in muscle size and strength. ■

For most of Michael Rudolph's career he has been engrossed in the exercise world as either an athlete (he played college football at Hofstra University), personal trainer or as a research scientist (he earned a B.Sc. in Exercise Science at Hofstra University and a Ph.D. in Biochemistry and Molecular Biology from Stony Brook University). After earning his Ph.D., Michael investigated the molecular biology of exercise as a fellow at Harvard Medical School and Columbia University for over eight years. That research contributed seminally to understanding the function of the incredibly important cellular energy sensor AMPK—leading to numerous publications in peer-reviewed journals including the journal *Nature*. Michael is currently a scientist working at the New York Structural Biology Center doing contract work for the Department of Defense on a project involving national security.

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## FDA CRACKDOWN *ON* TESTOSTERONE

On occasion, I am invited overseas to speak about anabolic steroids. I appreciate these opportunities greatly, as they allow me to interact with clinicians and athletes and obtain different perspectives on this issue. I am slightly conflicted when I speak at such events, though. On the one hand, I can't help but carry some feelings of guilt as an American, for my country's exportation of steroid hysteria and prohibition. On the other, I am proud to stand in a room and proclaim that we are the world leader in testosterone therapy. More and more American men are using these drugs to help keep them active and healthy, and I believe it is a great thing. We've been remarkably progressive on this issue; something I think we should export more. Unfortunately, it seems this new open attitude toward testosterone is not in line with the U.S. Food and Drug Administration (FDA). A recent story in The Washington Post highlights how they are cracking down on testosterone prescriptions.<sup>1</sup> Pay attention if you are one of the more than 2 million American men receiving this drug from your doctor.

The number is actually 2,291,266, according to the FDA's statistics for 2013. This is one of the things they seem to be taking issue with. This number has almost doubled in four years, up from slightly over 1 million prescriptions in 2010. They are also noting that more than one in four men have received initial prescriptions for the drug without any blood level check of the hormone. The agency appears to be blaming the marketing of low testosterone, or "low T." They claim testosterone drugs are being widely promoted to treat symptoms and conditions for which they were never officially approved, such as sexual dysfunction and loss of strength and muscle mass with aging



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**Andropause has  
been widely  
studied, and  
treatment with  
testosterone is  
well supported  
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... generally speaking, age-related testosterone decline or "andropause." While researchers widely recognize this condition, as well as the benefits of testosterone therapy, the FDA has not, as of yet. Any such prescribing is "off-label."

The "off-label" use of drugs is not illegal in this country. In fact, many regard it as an important cornerstone of our medical system, which allows doctors to progress and find new treatments. However, the FDA does seem very concerned about the marketing of drugs for off-label purposes. It can circumvent their process of judging efficacy and safety. They typically will respond to these activities in some manner. In the case of testosterone, they have done so by forcing modifications to the prescribing information of these medications, highlighting their concerns. Doctors nationwide are being informed of the changes; generally that "low T" is not a recognized condition, and that the medical value/risks of testosterone drugs to aging men are unclear. The following are the specific additions that you will now find in drug packaging inserts for testosterone, as noted in the latest update to Pfizer's Depo®-Testosterone (testosterone cypionate).

### INDICATIONS AND USAGE

Safety and efficacy of DEPO-Testosterone (testosterone cypionate) in men with "age-related hypogonadism" (also referred to as "late-onset hypogonadism") have not been established.

### WARNINGS

Long-term clinical safety trials have not been conducted to assess the cardiovascular outcomes of testosterone replacement therapy in men. To date, epidemiologic studies and randomized controlled trials have been inconclusive for determining the risk of major adverse cardiovascular events (MACE), such as non-fatal myocardial infarction, non-fatal stroke and cardiovascular death, with the use of testosterone

compared to non-use. Some studies, but not all, have reported an increased risk of MACE in association with use of testosterone replacement therapy in men. Patients should be informed of this possible risk when deciding whether to use or to continue to use DEPO-Testosterone (testosterone cypionate).

### ADVERSE REACTIONS

Cardiovascular Disorders: myocardial infarction, stroke.

### DOSAGE AND ADMINISTRATION

Prior to initiating DEPO-Testosterone (testosterone cypionate), confirm the diagnosis of hypogonadism by ensuring that serum testosterone concentrations have been measured in the morning on at least two separate days and that these serum testosterone concentrations are below the normal range.

### WHAT DOES THIS MEAN?

I'm going to give you the very short of it, as this topic could easily swamp this month's ARU (and next) with a lengthy discussion of testosterone studies. I'll summarize as this. Andropause has been widely studied, and treatment with testosterone is well supported by the medical literature. However, a couple of recent studies, specifically on high-risk populations, found increased likelihood of cardiovascular events in some men receiving the drugs. Facing this, complaints about the marketing campaigns driving the "overprescribing" of testosterone drugs, and the fact that most of this is off-label use anyway, the FDA looks to be taking a cautious position. This doesn't change my view of testosterone therapy, which I believe can be very valuable to maintaining good health. It does, however, caution me that doctors may not be so open to prescribe these drugs in the coming years. I will be very interested to see what results from these changes. Please be sure to report anything of interest, and I will stay on top of this to see what develops.

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1. Steven Woloshin and Lisa M. Schwartz. Sell a Disease to Sell a Drug. The Washington Post, June 7, 2015.



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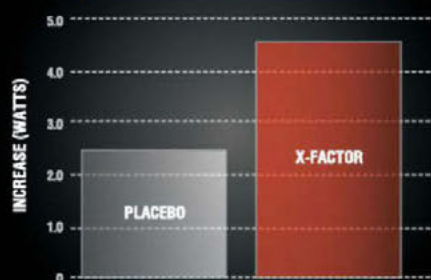
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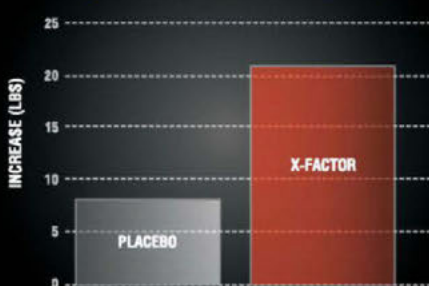
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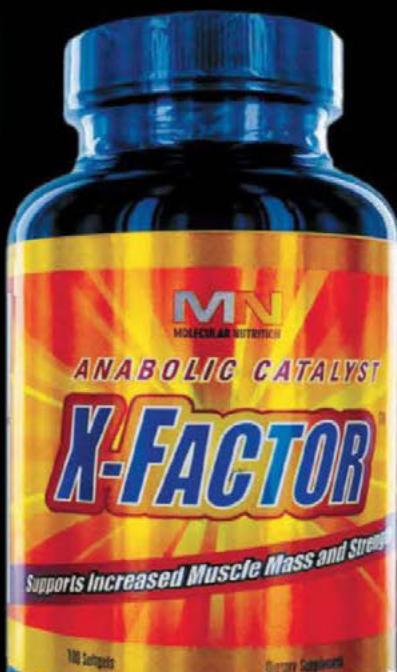
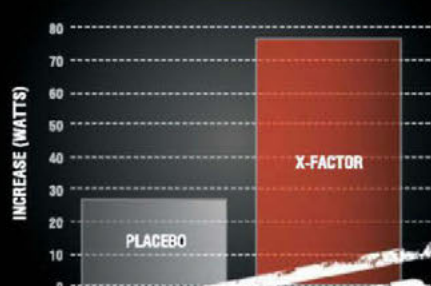
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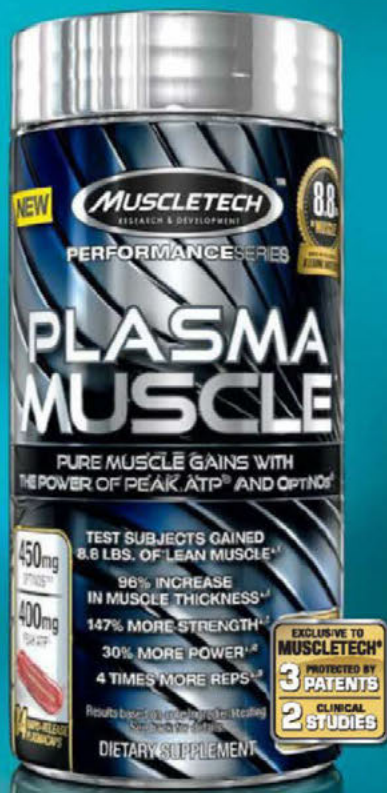
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# ANABOLIC RESEARCH *UPDATE*

## BOLDENONE CYPIONATE: TESTOSTERONE'S COUSIN

*What is your opinion on boldenone cypionate? I was thinking about running 400 milligrams per week. Do you think it is an effective mass builder? How does it stack up next to testosterone cypionate? Also, do you think boldenone cypionate is a better choice than Equipoise?*

Structurally speaking, boldenone is a close cousin of testosterone. It has been modified by the removal of two hydrogen atoms on its A ring, which forms an additional double bond there. Though a seemingly minor change, this alters the character of the steroid considerably. Boldenone aromatizes (converts to estrogen) more slowly than testosterone. It is also less androgenic, due to the fact that it notices minimal metabolism by the 5-alpha reductase enzyme. In the case of testosterone, this enzyme forms a considerably more active/androgenic metabolite (dihydrotestosterone). Overall, boldenone has a milder character compared to its chemical cousin. It is not as effective a mass builder as testosterone, but also less prone to fat and water retention. People generally expect less dramatic gains compared to an equal dose of testosterone cypionate, but they may be of higher quality.

You also asked about comparing boldenone cypionate to undecylenate, which is the ester found in Equipoise. Here, I don't think you will notice dramatic differences, as they both supply boldenone. The esters break off, and really only facilitate delivery (unless you are splitting technical hairs, in which case they may influence metabolite formation slightly). So I wouldn't expect qualitatively different gains. Cypionate is faster acting, though. Undecylenate is actually one of the longest and slowest-releasing esters used with AAS, taking several weeks for peak blood levels to be reached. You tend to not notice its full effect as quickly. In this regard, boldenone cypionate is probably better suited for the eight- to 12-week cycles that most bodybuilders use. Its effect will seem to come on faster, and in some cases perhaps be more pronounced (quantitatively better). While Equipoise is fine, of course, I do feel the undecylenate ester is a bit too slow acting at times.

## INJECTING TESTOSTERONE SUSPENSION: HOW OFTEN?

*I really want to try testosterone suspension, but need something cleared up. I get very different opinions on how to use it. Some guys say to take it every other day, that it lasts long enough in the body. Others tell me I'm wasting it if I don't use it twice per day, as it travels fast in and out of the body. This is water suspension, not oil. What is your opinion?*

I'm quite familiar with this drug. Up until the early 1990s, testosterone suspension was still manufactured by U.S. pharmaceutical companies, and commonly diverted to and sold on the black market. Old-timers will remember the ubiquitous

nature of the Steris 10-milliliter and 30-milliliter vials, I'm sure. Back then, it was widely recommended to inject testosterone suspension once every second or third day. Some people would inject it daily, but I never knew anyone to use it multiple times per day. While the rate of absorption from the site of injection will admittedly vary from product to product, depending on the formulation and in particular the particle size, I think that in all cases, multiple times per day would be an excessively frequent schedule. Suspension has no ester, which is probably why many people assume it to be so immediate. However, the steroid particles still form some depot in your muscle tissue after injection. This will take a little bit to clear. Typically, a schedule of every other day is fine. Oil-based suspension may be a little bit slower, but I wouldn't get hung up on the specifics here too much. I'd consider them both to be fast-acting testosterone that require several injections per week (not per day).

## 'BUYER BEWARE' FOR GH MARKET

*I'd like to know your opinion on growth hormone (GH) these days. Which brands are best to buy?*

The GH market is a mess, honestly. There are four big issues here. One, GH is expensive. There is a lot of financial incentive to counterfeit it. Two, most people will not know real GH if they use it. It is a subtle drug, and worse, typically stacked with anabolic steroids. It takes someone with a lot of experience to discern when bunk GH is in his or her stack. Beginners are easily swindled, again increasing incentive for counterfeiting. Three, real GH is difficult and expensive to produce. Duplicating a large, delicate peptide with recombinant DNA technology is infinitely more complex than basic steroid synthesis. The number of global manufacturers is much smaller. And four, the limited global supply of pharmaceutical GH is fairly tightly controlled these days. Black-market diversion is far lower than black-market demand. This means most of the GH comes from counterfeiters and underground labs, which again, have limited access to real materials (again, problem three). With the limited testing I have reviewed, I fear that the vast bulk of what is sold on the black market is not real GH. I'm trying to put together another testing run to see if we can quantify the current state of things. I will keep you posted if I can get it together. For now, I'd say real GH is out there, but it is a serious "buyer beware" market. ■

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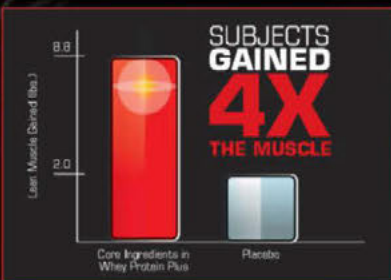
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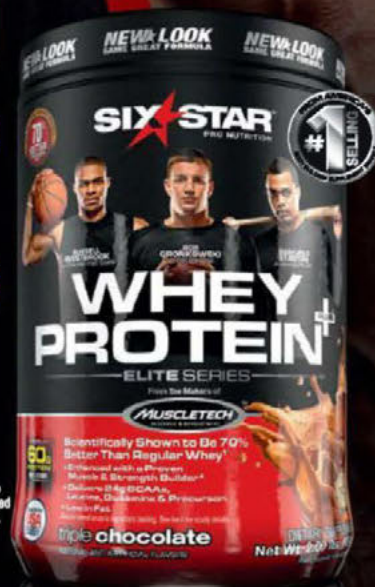
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by over six times compared to baseline. In another study, phosphatidic acid was even shown to help keep mTOR signaling elevated for hours. These impressive results were published in the highly regarded journal *Nutrition & Metabolism*.

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## DOUBLE-SPLIT ROUTINES: ARE THEY WORTH IT?


**IN THE OLD DAYS, MOST COMPETITIVE BODYBUILDERS TRAINED ON A DOUBLE-SPLIT ROUTINE, GOING TO THE GYM TWICE A DAY TO TRAIN DIFFERENT BODY PARTS. MOST GUYS TODAY DON'T SEEM TO DO THIS. HAVE YOU EVER TRIED IT, OR DO YOU EVER DO THAT AT CERTAIN TIMES? WHAT DO YOU SEE AS THE ADVANTAGES AND DISADVANTAGES OF TRAINING TWICE A DAY?**

### DEXTER JACKSON

I never did it, and I am against the whole idea. I don't see any reason why you can't hit two body parts in a workout and hit them properly, unless we're talking about back or legs. You should always do those body parts on their own, because they are huge muscle groups that you do more exercises for. You shouldn't be so wrecked after chest or shoulders that you can't do biceps or triceps after, or calves. If you are, you're probably doing way too much and need to cut back.

I like to train Monday through Friday, once a day. Training twice a day seems to be something the guys on the West Coast like to do. They've been doing it since the days of Arnold and his buddies. On the East Coast, guys bang out one good workout a day. Maybe it's because more often, the East Coast guys have more job demands and don't have time to be hanging around the gym all the time. That's the biggest thing I have against double-split routines. You get to a point where you're pretty much living in the gym. Even if you didn't have anything better to do with your time, you would still burn out after a while doing that.

The reason a lot of guys do that double-split is so they can train every body part twice a week. That's another point I disagree with. To me, that's just overkill. For my whole career, I've trained every muscle group once a week. Hit it hard, and then give it the time it needs to recover. The only benefit I can see to a double-split is for someone who just loves training and being in the gym so much that once a day isn't enough. But it's not a good idea, in my opinion.



***"You get to a point where you're pretty much living in the gym. Even if you didn't have anything better to do with your time, you would still burn out after a while doing that." —Dexter Jackson***

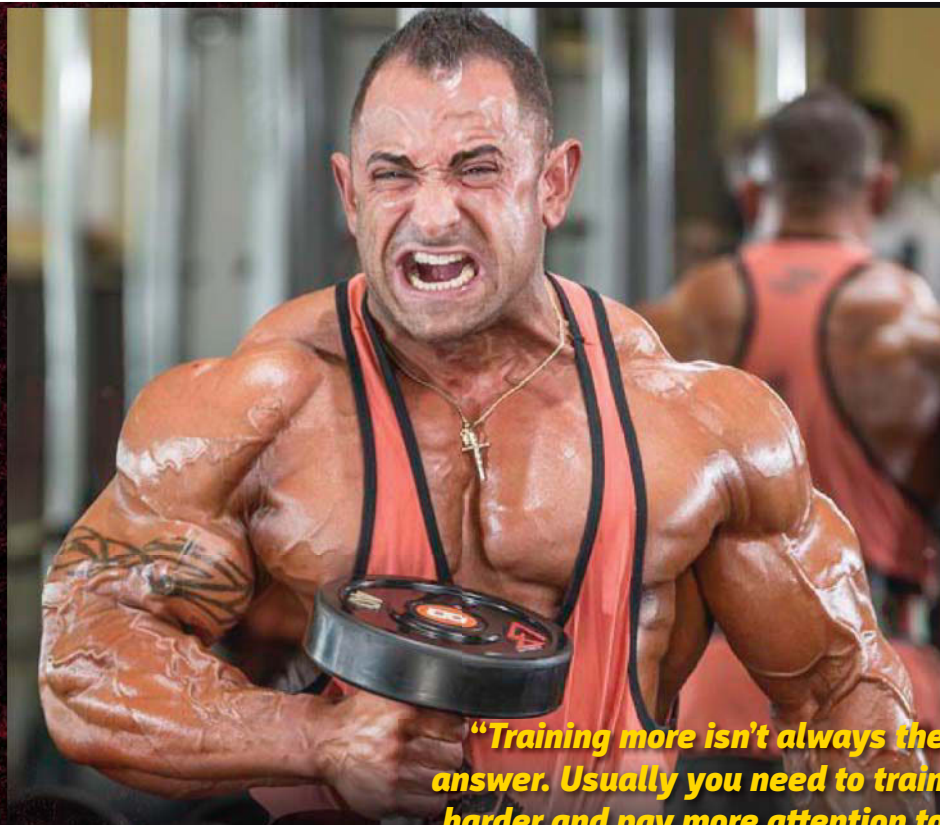
### DENNIS WOLF

I used to do this a lot a couple years ago, mostly for pre-contest but also in the off-season, too. I would train a large body part in the morning and then come back later to do a smaller one. It was nice, because the workouts were shorter this way. It would usually be about an hour for each one, where doing both at the same time could take me close to two hours. But one thing I found was that because I was training more, I had to eat more. When you train twice a day, you now have two pre-workout meals and two post-workout meals. If you are having shakes before and after your workouts, this can make it tough to consume the other meals you need every day, because you are waiting for those shakes to digest first. Another thing that started bothering me about doing double-splits was that I was doubling my traveling time driving to the gym and back, which can be hard if you don't live very close to your gym and there is bad traffic at certain times of the day. So now I only train with a double-split when I am in prep for a contest. It makes sense, because I am doing more exercises and more sets, so my workouts for each body part take longer to complete. For this year's Mr. Olympia prep, I am going to only do things like abs and calves at night, though. The way I will be splitting up my workouts for the body parts, each main morning session shouldn't take me too long.

As far as doing a double-split all the time, if someone has the time and they want to do it, go ahead and try it, I say. Just be warned, it's not easy to put 100 percent into two workouts every day. I found that one is usually better, where you have more energy. For me, that's the first workout of the day.







## JUSTIN COMPTON

I have actually done two training sessions a day, a couple of times in the past. I think that there is a time and a place for it, even if I wouldn't necessarily do it all the time. I am a volume guy, so when I get training, it's hard for me to back down until I'm totally spent. Coming in for the second training session is a bit taxing for me because I put so much into any of my workouts. I don't "save" anything for later because that would mean I would hold back in the first workout, which isn't me.

In defense of double-split routines, I have to say that immediately post-contest and once last off-season, I used the "two-a-day" split to help bust through plateaus, and they do work efficiently. However, for me, it was only something I could handle for two to three weeks, as my body started getting very tired. I was taking extra naps during the day between sessions, and I felt run-down during the time outside of the gym. Again, it's great to shock the body, but not something I would try to do for long periods of time. And if you are thinking about trying a double-split, make very sure you are on top of your meals and especially your sleep. If you are in a situation where you can't always eat your scheduled meals and you can't always get a solid eight hours of sleep a night (if not more, or a nap during the day), I wouldn't even think about it. You would overtrain pretty fast.

***"Training more isn't always the answer. Usually you need to train harder and pay more attention to recovery instead." —Guy Cisternino***

## GUY CISTERNINO

I actually did this when I was in my red-shirted freshman year of college. It just killed my body. I hit every body part twice a week, and it just beat my body up. I can't speak for others that still do this, but my theory is this: I kill my body parts when I train them. My goal is to end each workout knowing I could not have worked that body part any harder. For example, I train legs on Monday. They are not recovered until Friday. I know this because they are sore all week. It takes them about four to five days to recover before I would even think of training them again. So if you are killing your workouts the way you should, one workout per day should be sufficient for optimizing the most out of your workouts. Most people who do this do so because they want to be able to train every body part once a week. Either they aren't giving that body part 100 percent, or they must have superhuman recovery ability. Most people I know, even top pros, find they can't hit body parts that often and still make gains. I don't see any advantage in training twice a day—I only see it as not giving your body enough time to rest, recover and grow. Training more isn't always the answer. Usually you need to train harder and pay more attention to recovery instead.





## **BENEFITS OF CHIROPRACTIC THERAPY AND DEEP-TISSUE MASSAGE**

**HOW IMPORTANT IS THERAPY LIKE CHIROPRACTIC AND DEEP-TISSUE MASSAGE? HOW OFTEN DO YOU DO THOSE AND WHAT BENEFITS DO YOU NOTICE?**

### **DENNIS WOLF**

I think therapy treatments in general are very important for high-level bodybuilders, due to the way we train and the strain we put on our bodies. Deep-tissue massage is something that I do at least once a week. I have problem areas like my shoulders where there is some pain, and just tightness from having a lot of muscle mass and training with heavy weights all this time. If I have a little injury or just an area that's giving me pain, I will schedule massages more often. I find that during prep, I need two massages a week. It opens up the muscle tissue that gets stuck together so you have better blood flow. A lot of times, I am sore from massages for a couple of days after, but I notice my pumps are always better at those times, too. I don't see the chiropractor very often—about once every two months or so. My spine feels OK. If it didn't, I would go more often. These things are individual. I know some guys who never get massages or chiropractic adjustments, and they have no problems. I know from past experience that if I go more than a week or two without deep-tissue massage, things don't feel right and my training isn't as productive.

***"If I go more than a week or two without deep-tissue massage, things don't feel right and my training isn't as productive." —Dennis Wolf***

### **DEXTER JACKSON**

I always get a deep-tissue massage every week, but closer to a show I will go in for two or three sessions every week. I wouldn't do that if I didn't see multiple benefits from it. First, it relaxes me. It's the one thing I can look forward to in the final weeks of prep when I'm tired and drained. The massages are a tremendous stress reliever for me. They loosen up the bound tissue and help with growth, too. Most guys only look at them in terms of treating pain or injuries. I also have massage therapists that stretch me out, which is important because I'm terrible about doing that on my own. So that helps me stay flexible and keeps everything loose.

As for a chiropractor, I normally get adjusted once a week. If my lower back is giving me trouble, I might go as often as two to three times a week. I definitely do that in the last few weeks of prep, or other times when I need to. As I get older, I find that standing or walking for many hours at a time, such as at an expo, is very tough on my back and throws it out of whack. Luckily, I know now that my chiropractor can help me get it all back in alignment and feeling right again. These bones aren't getting any younger, but as long as I take good care of them, I'm doing OK!



## GUY CISTERINO

In my opinion, both are EXTREMELY important. I always went to a chiropractor and a massage therapist just for general wellness. When I got into my bad accident back in 2011, I got pretty banged up, so I see my chiropractor twice a week and get a massage usually once per week. To me, these little things go a long way and definitely make you feel much better, overall. After all the compression the spine gets from training heavy, deep-tissue work breaks up knotted-up tissues and adhesions— and doing so will allow for maximal muscle growth and blood flow to those muscles. So I think a chiropractor and a massage therapist are a MUST.



## JUSTIN COMPTON



***“Chiropractic and deep-tissue work is very beneficial for bodybuilding. When the spine is 100 percent in line, the body is going to function better, period. As bodybuilders, we can’t afford to function any less than 100 percent.” —Justin Compton***

Chiropractic and deep-tissue work is very beneficial for bodybuilding. When the spine is 100 percent in line, the body is going to function better, period. As bodybuilders, we can’t afford to function any less than 100 percent, so it is a “must” to keep yourself in check. I typically try to go in once a month for routine chiropractic work to get adjusted, to check my check spine and hips. If I have something aggravated, I will go as often as needed. The spinal cord controls pretty much everything in the body, and is something we can’t overlook.

As for massage therapy, it definitely has a strong place in this sport as well. I use both ART [active release techniques] and deep-tissue. ART is great for tendonitis and other miscellaneous pains, along with improving mobility. Having the muscles function at their full capacity is very crucial to growth as well as injury prevention. Deep-tissue is great to implement to remove any scar tissue or adhesions that our bodies may have. With constant strain and tension on your muscles, along with the lack of stretching, it is highly likely that you will build up very small adhesions in the muscle. Deep-tissue work, along with the Graston Technique, is great to fix these problems.



## A CUT ABOVE WITH 4-TIME MR. OLYMPIA JAY CUTLER



### DON'T GO HEAVY ON CLOSE-GRIP PRESSES

*I recall you had mentioned a couple of years back that you decided the close-grip bench press for triceps was not a good exercise for you. Was it bothering your shoulders? I'm also confused because not long after, I read a triceps-training article in another magazine where you said you ALWAYS do close-grip presses! Was that from an old interview or something?*

Just to clear that up, the article you read later was based on what I had said in December 2009. And at that time, heavy close-grip bench presses were a regular part of my triceps routine. That all changed soon after one day in February 2010, when I was doing close-grip presses with 405. Coming up on the second rep, I heard a tearing sound. It didn't turn black and blue like a full tear would, but I knew I had torn some fibers in my chest. That was actually the worst injury to my chest that I've ever had. I couldn't train chest for three full months after that, the longest I had gone since I began bodybuilding at age 18. I eventually did start doing them again toward the end of my Olympia prep that year. But I go much lighter on that movement now. You will never see me using 405 again. The risk isn't worth it. The bench press and the close-grip bench press can be very dangerous exercises to go super heavy on, especially for someone who has as much dense muscle mass as me. The pressure they put on the joints and tendons is tremendous, so when I do them now it's definitely not as heavy as the old days. For triceps, I focus more now on dips, overhead dumbbell extensions and pushdowns.

### MY EARLY TRAINING AND DIET WAS SIMPLE, BUT IT WORKED PERFECTLY

*I am 17 years old, and was just curious what you looked like at 17. At what age did you start training? Also, what was your diet and workout routine at that age? Thanks!*

I didn't start training until my 18th birthday, when I was 185 pounds and had a good base from years of hard, manual labor in my brother's concrete business. In my first year of training, I put on 50 pounds. My workouts weren't too different from what I do now. I usually trained five days a week with a lot of basic free-weight exercises and fairly high volume. I ate six times a day. Breakfast was eggs and oatmeal. The next three meals were chicken and pasta. My fifth meal was steak and a big baked potato, and my last meal was egg whites. It sounds very simple, and it was— but it worked perfectly.

### MOST IMPORTANT ADVICE: THANKS, MR. HANEY

*What was the most important advice given to you when you started out, and who gave it to you?*

He didn't personally give this advice to me, but I would have to say it was Lee Haney's famous saying, "Stimulate, don't annihilate." To me, it meant that a certain amount of work for a given muscle at any workout was enough, but there was no point in doing anything more. Later in life, I also took it to mean that you don't want to train with the absolute heaviest weights all the time. It led me to develop my own training style of moderately heavy weight for higher volume, but never so high in volume that I became overtrained. I also became more and more aware of the value of "stimulating" the muscle more effectively with a great mind-muscle connection, instead of just trying to always go heavier and heavier.

**"For best results in gaining overall mass, I don't think you should be training anything twice a week. Stick to a basic routine that emphasizes compound movements like bench presses, squats, deadlifts, barbell rows, weighted dips, chins and military presses."**

## BASIC ROUTINE FOR GAINING MASS

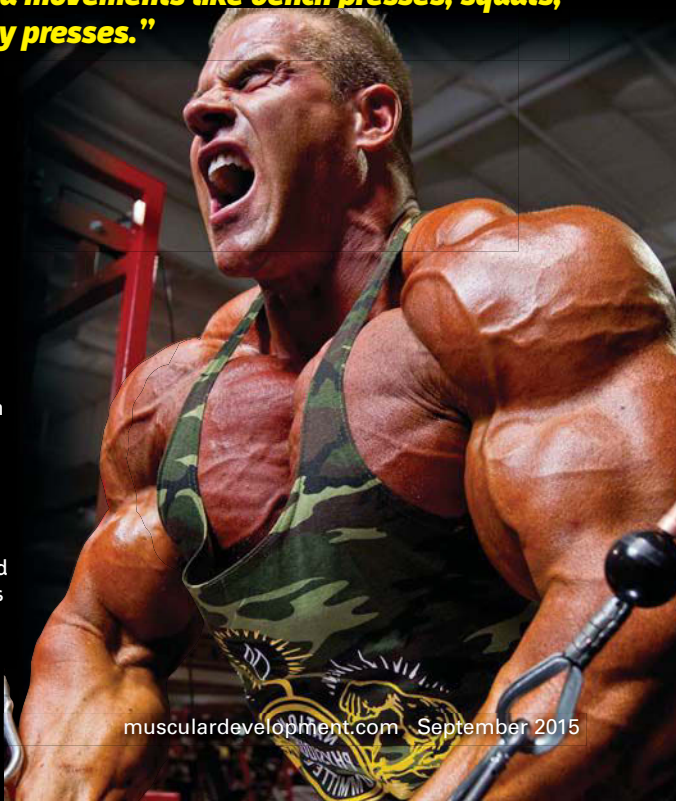
*Hey Jay, I would like your advice on my routine. I'm trying to gain more mass. My current routine is:*

**Monday:** Chest (incline only)  
**Tuesday:** Back  
**Wednesday:** Off  
**Thursday:** Chest (flat only)  
**Friday:** Legs  
**Saturday:** Arms  
**Sunday:** Off

*Please let me know how I can change it up, if at all.*

I don't see shoulders in there at all. Did you forget to write them down, or do you not train them? If so, I suggest you

drop one of those two chest days and do shoulders then. For best results in gaining overall mass, I don't think you should be training anything twice a week. Stick to a basic routine that emphasizes compound movements like bench presses, squats, deadlifts, barbell rows, weighted dips, chins and military presses. Keep your reps in the six to eight range most of the time, and limit your total sets to 12 for larger body parts like legs, chest and arms, and no more than nine each for shoulders, biceps and triceps. Work each body part every five to seven days. And be sure that you are feeding your muscles outside the gym by eating a good meal with quality proteins and complex carbs every two to three hours. Get eight hours of sleep a night as a minimum, and take naps when you can. That all sounds simple, but it's exactly what you need at your stage of training. ■





## *The Animal Kingdom*

WITH 8-TIME MR. OLYMPIA LEE HANEY



# GET RIPPED BUT DON'T RISK YOUR HEALTH! **PART 1**



***"You want to be around and healthy to enjoy the fruits of your success that you worked so hard for, not on dialysis or even worse— in a coffin, six feet underground."***

**I**n my travels, I have spoken to many bodybuilders who were confused about their contest preparation, particularly as it relates to the final week. They have mentioned using things like diuretics to shed water, as well as various other drugs that can put their kidneys and heart in serious danger. And I do mean serious. Several athletes have died as a result of these practices. And sadly, many competitors rely on "gurus" these days that advise them on these matters. Some of these so-called experts have never even set foot on a bodybuilding stage, and most of their knowledge is in the field of drugs rather than solid training and nutritional principles. I am here to tell you that at the end of the day, you want to be around and healthy to enjoy the fruits of your success that you worked so hard for, not on dialysis or even worse— in a coffin, six feet underground. This month, I would like to talk about how to get into peak condition while staying healthy.

I have said it many times, and I will keep saying it: If you can't flex it, don't carry it! A competitive bodybuilder should never let himself look like Porky Pig. Recently I watched a pro, who shall remain nameless, guest pose in such awful condition that the audience clapped at the end because they were glad he was finally done! Some guys will get 40-50 pounds over their stage weight in the off-season, which is a huge mistake. When you have that much fat to lose, of course you will have to resort to extreme measures once it's time to diet. I see a couple of reasons for this.

For one thing, a lot of athletes today put the emphasis on size above other attributes like symmetry, balance and proportion— the things that make a physique truly beautiful. They bulk up with all this extra weight in the belief that the added mass is lean muscle tissue, when in fact it's fat. And as we've all noticed, when mass is your main goal, even what you do gain isn't usually in the areas you want— but instead in your gut and your butt! Why is it that you never saw the champions of the past like Arnold, Robby, Franco,

Albert Beckles, Rich Gaspari, Lee Labrada or myself get fat in the off-season? It's simple. Most of us came from athletic backgrounds. I was a track and field athlete and a football player. An athlete doesn't get sloppy in the off-season. He has more discipline than that. But unfortunately, I don't see that same discipline in many of today's bodybuilders. They would rather put off the hard work and then rely on a cocktail of various drugs to burn the fat and get in shape. Obviously, if they never got so out of shape in the first place, there would be no need for all that.

One main principle we all understood back in the old days, but that seems to have been forgotten, is "eat for what you are doing that day." We actually ate less in the off-season because we weren't training as frequently or with as much volume. Our calories usually increased as we got closer to the show! That puts less stress on your digestive system and internal organs. Staying in better shape and eating less is so much healthier for you than getting fat and stuffing yourself every day.

The list of athletes who have died before the age of 50 due to heart attacks and diuretics is long, and that's a shame. Meanwhile, you have past champions alive and well in their 50s, 60s and even 70s. I love the sport of bodybuilding, and want us all to stay safe and be healthy to enjoy long, happy lives.

Next month, I will outline my personal strategies on how I peaked for a contest without resorting to diuretics or any other drastic means, giving you techniques you too can use at your next contest. ■

Would you like to train with eight-time Mr. Olympia Lee Haney? Lee offers both online and personal training for out of town guests. Visit [www.lee-haney.com](http://www.lee-haney.com) for a complete list of services!

Check out videos from the IAFS workshops at <https://www.youtube.com/user/IAFSCertification>. For more information, please visit the website at [iafscertification.com](http://iafscertification.com).

Got a question for Lee Haney? You can ask him directly on the MD website and have Lee personally answer your question! Go to [www.musculardevelopment.com](http://www.musculardevelopment.com), MD Forums, MD Staff and Pros, Q and A for Lee Haney Zone.



## Arnold's Corner

WITH 7-TIME MR. OLYMPIA ARNOLD SCHWARZENEGGER

BY RON HARRIS



### ARNOLD SCHWARZENEGGER'S WORKOUT ROUTINE\* MONDAY-WEDNESDAY-FRIDAY

EXERCISE	SETS	REPS
<b>CHEST:</b>		
BENCH PRESS	5	6-10
FLAT BENCH FLYES	5	6-10
INCLINE BENCH PRESS	6	6-10
CABLE CROSSOVERS	6	10-12
DIPS	5	TO FAILURE
DUMBBELL PULLOVERS	5	10-12
<b>BACK:</b>		
FRONT WIDE-GRIP CHIN-UPS	6	TO FAILURE
T-BAR ROWS	5	6-10
SEATED PULLEY ROWS	6	6-10
ONE-ARM DUMBBELL ROWS	5	6-10
STRAIGHT-LEG DEADLIFTS	6	15
<b>LEGS:</b>		
SQUATS	6	8-12
LEG PRESSES	6	8-12
LEG EXTENSIONSS	6	12-15
LEG CURLS	6	10-12
BARBELL LUNGES	5	15
<b>CALVES:</b>		
STANDING CALF RAISES	10	10
SEATED CALF RAISES	8	15
ONE-LEGGED CALF RAISES (HOLDING DUMBBELLS)	6	12
<b>FOREARMS:</b>		
WRIST CURLS (FOREARMS ON KNEES)	4	10
REVERSE BARBELL CURLS	4	8
WRIGHT ROLLER MACHINE		TO FAILURE
<b>ABS:</b>		
NONSTOP INSTINCT TRAINING FOR 30 MINUTES TUESDAY, THURSDAY, SATURDAY		
<b>BICEPS:</b>		
BARBELL CURLS	6	6-10
SEATED DUMBBELL CURLS	6	6-10
DUMBBELL CONCENTRATION CURLS	6	6-10
<b>TRICEPS:</b>		
CLOSE-GRIP BENCH PRESSES (FOR ALL THREE HEADS)	6	6-10
PUSHDOWNS (EXTERIOR HEAD)	6	6-10
BARBELL FRENCH PRESSES (INTERIOR HEAD)	6	6-10
ONE-ARM DUMBBELL TRICEPS EXTENSIONS (EXTERIOR HEAD)	6	6-10
<b>SHOULDERS:</b>		
SEATED BARBELL PRESSES	6	6-10
LATERAL RAISES (STANDING)	6	6-10
REAR-DELTA LATERAL RAISES	5	6-10
CABLE LATERAL RAISES	5	10-12
<b>CALVES AND FOREARMS:</b>		
SAME AS MONDAY, WEDNESDAY AND FRIDAY		
<b>ABS:</b>		
SAME AS MONDAY, WEDNESDAY AND FRIDAY		

# ARNOLD'S WORKOUT ROUTINE: DON'T DO IT!

In many ways, Arnold Schwarzenegger is a fine role model to emulate. His ambition, his relentless drive to succeed, work ethic, willingness to endure pain and hardship to achieve his goals, and ability to consistently set goals and develop effective game plans toward them are all qualities to admire. And when it comes to his training, all of us would be behooved to mimic his intensity and attention to detail in the gym during his competitive years. But if you are thinking about following the exact workout routine the Austrian Oak used to win first five Mr. Universe titles and then the Mr. Olympia seven times, I urge you to reconsider.

What is this blasphemy? Please allow me to explain before the hate emails flow. Take a good look at Arnold's full routine to the left. Arnold trained twice a day for about two hours at a time, every day but Sunday. The volume was considerable. Every Monday, Wednesday and Friday, he did 60 sets for chest and back, as well as another 55 sets for legs and calves at a later workout, which wrapped with a further 16-30 sets for forearms and abs. Every Tuesday, Thursday and Saturday, he blasted shoulders with 22 sets, arms with 42 sets and also did the same 16-30 sets for forearms and calves. Certainly, a case could conceivably be made for hitting each body part three times every week if the workouts were incredibly brief. But Arnold's workouts were anything but brief. The man was a workhorse in the gym, an indefatigable juggernaut on a mission to dominate anyone who dared challenge his supremacy as the greatest bodybuilder alive.

If you've read interviews with a good amount of bodybuilders who lived and trained in the Venice/Santa Monica area

in the late 1960s throughout the '70s, you can't help but notice how many of them claimed to have been "Arnold's training partner." You might assume some are lying, but most really did train with Arnold—for a little while. One of them was former publisher of *Iron Man*, John Balik, who teamed up with Arnold for a short time in the late 1960s. He fully expected to make the best gains of his bodybuilding career by keeping up with the huge, young Austrian immigrant, set for set and rep for rep. After less than a month, he found himself constantly exhausted, and worse—clearly losing size and strength! "A lot of us tried to keep up with Arnold," he said. "Nobody could. He was one of a kind."

It's ironic that the same has been said many times about Ronnie Coleman, who trained every body part twice per week, working out every morning but Sunday. Ronnie obviously had superior recovery ability to be able to recuperate and grow from all those intense, heavy workouts—and Arnold most likely had a higher level of recovery ability. He thrived on training his muscles with a frequency and volume that no other pro, before or since, has been able to match with even remotely similar success.

You might argue that not having a "day job" allowed Arnold to focus on his eating and resting between workouts. Few of you reading this have the same luxury to allow for little other demands on your time outside the gym. But even if you do have the time to rest, and even if you happen to be geared out of your skull, I seriously doubt any of you would be able to make gains training like Arnold. I respect and admire the hell out of Mr. Schwarzenegger, but I wouldn't dream of following his training routine. ■

\*Source: Encyclopedia of Modern Bodybuilding by Arnold Schwarzenegger with Bill Dobbins. © 1985 Simon & Schuster.



# MB OLYMPIA LEGENDS

## The Blade

WITH 2008 MR. OLYMPIA DEXTER JACKSON



### INJURY CAN BE A BLESSING IN DISGUISE

*I have pretty severe pain in my right shoulder that I suspect might be a torn rotator cuff. I just started a new job and I won't have medical insurance for another couple of months. At that point, I will get an MRI. In the meantime, I can't do any type of heavy pressing for chest or shoulders. What I am doing at the moment is completing all my lateral movements before presses on shoulder day, and hitting the pec deck and cable crossovers before any chest pressing. The pumps are intense and my shoulders and chest are getting sore, but I really wonder if I am stimulating any muscle growth because my pressing weights are so low. For example, I used to put three plates on each side of the Hammer*

*Strength shoulder press machine, but these days it's only a 45 and a 25. What do you think?*

If someone is just starting out or training with no limitations like an injury, I would say they should train as heavy as they can in good form to add mass. But that's not your reality at the moment. You can't go heavy. Does that mean you should quit training? Of course not. You are doing the best you can and finding ways to keep your training intensity high, without using heavy weights. From what you're telling me, you seem to be doing just fine with the pre-exhaust style of training for your chest and shoulders. The fact that you are getting pumps and getting sore tells me that your pecs and delts are receiving a whole new type of stimulation.

Another thing to consider is that your form

and mind-muscle connection might actually be better now than they were before. Often, guys sacrifice both of those to be able to use heavier weights, and don't even realize it. This should make you feel better to hear. A couple of years back, my knees were giving me a lot of trouble and were in almost constant pain. There was no way I could train my quads heavy. Charles Glass had me use lighter weights and pre-exhaust my quads with extensions, and do higher reps on my leg presses, hacks and machine squats. Do you think my quads shrunk from that? I thought they would, but they grew! In fact, people were telling me my quad sweep was finally improved after it had been unimpressive for most of my career. So this injury of yours could actually be a blessing in disguise.

### VENICE BEACH, THEN AND NOW

*Since you spend so much time out in Venice, California these days, I wonder what it's like out there compared to the old days. I used to compete in the '90s and early 2000s, and every year I would go out there for a few days to train at Gold's, eat at The Firehouse and walk up and down the boardwalk. There were tons of pros and top amateurs around all the time at Gold's, and you would bump into them at the restaurants, too. Is it still like that, or are there hardly any bodybuilders around anymore?*

No, it's not quite like that anymore, and I doubt it ever will be. From the '60s all the way through the end of the '90s, most of the best bodybuilders in the world lived out in Los Angeles. That's why they called it The Mecca. I think the Internet changed a lot of that, because it was no longer necessary to live out there to be seen and noticed. But you still have a lot of pros at Gold's. Shawn Rhoden and I train there most of the year, plus Hide Yamagishi, Brad Rowe, Will Harris and Chris Cormier. Of course, Charles Glass trains all his clients there. Any time pros like Jay Cutler or Phil Heath are in town, they train at Gold's, and there are always a few pros or top amateurs visiting. Before and after any big contest, you will still see photo and video shoots happening in there. It may not be quite what it used to be, but Venice Beach is always going to be somewhere bodybuilders head out to. ■

### VISIT DEXTER'S OFFICIAL WEBSITE:

[www.dextertheblade.com](http://www.dextertheblade.com)

Follow Dexter on Twitter: @MrOlympia08 and on Instagram: mrolympia08

For information about Dexter's NPC shows for 2015, visit [www.dexterjacksonclassic.com](http://www.dexterjacksonclassic.com) (Dexter Jackson Classic) and [www.djmemphisclassic.com](http://www.djmemphisclassic.com) (Dexter Jackson Memphis Classic).

Got a question for Dexter Jackson? You can ask him directly on the MD website and have Dexter personally answer your question! Go to [www.musculardevelopment.com](http://www.musculardevelopment.com), MD Forums, MD Staff and Pros, Q and A for Dexter Jackson.

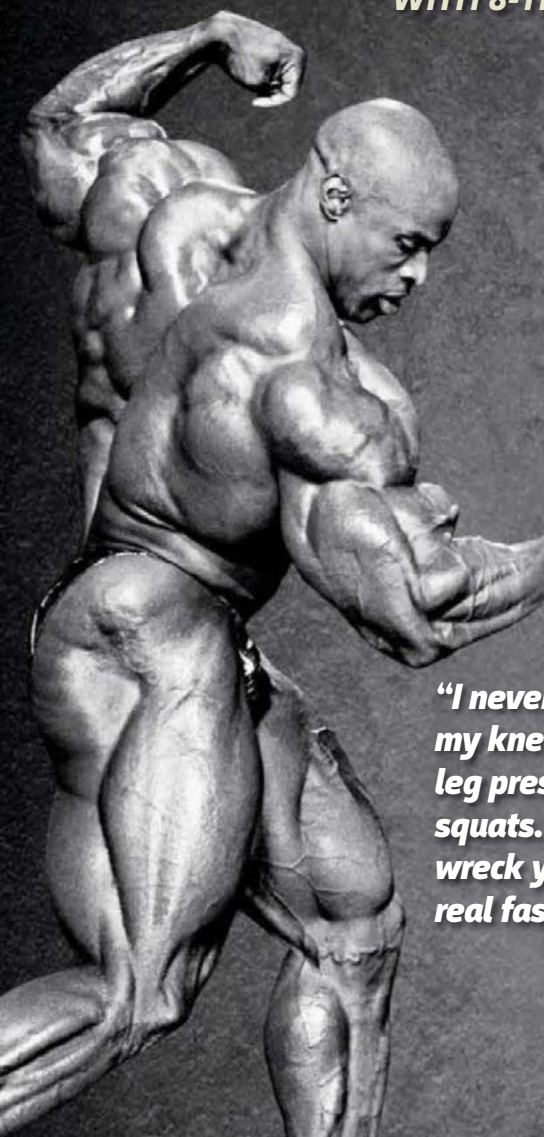
***"It may not be quite what it used to be, but Venice Beach is always going to be somewhere bodybuilders head out to."***





## Hardcore Q&A

WITH 8-TIME MR. OLYMPIA RONNIE COLEMAN



### DON'T LOCK OUT ON CHEST AND LEG TRAINING

*I know some bodybuilders like you, Branch Warren, Johnnie Jackson and more recently, Maxx Charles, have gotten very thick pecs by using a shortened range of motion on pressing movements to keep constant tension on the chest. Do you think the same principle could be applied successfully with pressing movements for the legs, like leg presses, squats and hack squats? In other words, could a shorter rep stroke on those actually deliver better results than a full range of motion?*

First, my range of motion was never too short on presses. If you watch any of my training DVDs, you will see that I did get a good stretch on all my reps. If I was using a barbell, I would touch my chest. I just didn't lock out my elbows, because at that point I felt all the pressure in my shoulders and elbows instead of my chest. The same goes for all the leg exercises I ever did. Not going all the way down was never an option for me, because I started out with a powerlifting background. When you squat in powerlifting, the lift doesn't even count unless you go at least to parallel. You do have to lock out the lift. Once I got into bodybuilding, I stopped doing that and would make sure I never locked out my knees on squats, leg presses or hack squats. That will wreck your knees real fast. And after more than 35 years of heavy lifting, my knees feel just fine.

***"I never locked out my knees on squats, leg presses or hack squats. That will wreck your knees real fast."***

So to keep tension on your quads, do go all the way down, but never come up to full lockout of your knees. Just to clarify about my hips and my double hip replacement earlier this year, that was a genetic issue. I have a brother five years younger than me who is getting a double hip replacement—and he never lifted heavy weights in his life.

### ALL I NEED IS WEIGHT FOR A GOOD WORKOUT

*Since you travel all around the USA and the world promoting your Ronnie Coleman Signature Series, you must find some places to train that are less than ideal. Have you ever arrived at a gym and decided it was just too sketchy for you to even train there once? What are your minimum requirements for a place to train when you're on the road?*

All I need is weight! Honestly, I've never found a gym that I wasn't able to get a workout in. And I have been to some very basic places ... trust me. In the Dominican Republic, I trained one time at a gym that was really just a room with some bars and plates with one rusty old bench. Back when I used to compete over in Europe, I would go to a lot of gyms that had the same type of equipment most guys had as kids at home, the standard bars with the cement weights covered in plastic. Nowadays, it's way better over there. There are chains like McFIT and Fitness Connection that have new equipment and nice facilities. Unlike the 24 Hour Fitness and Planet Fitness places in the USA, these gyms welcome bodybuilders as long as you respect the place and don't throw weights around. They treat me like a king every time I go over there.

### ONLY ONE MAN IMPRESSED ME WITH THE WEIGHT HE MOVED

*You are legendary for your strength, so I am sure people would have to be crazy strong to impress you in the gym. Who are some of the strongest men you have ever either trained with, or saw training?*

That's easy. A pretty famous powerlifter named Steve Goggins used to train at Metroflex way back in the day. He was the first man to squat 1,100 pounds in competition, and the first man in the 242 class to squat 1,000 pounds. I remember spotting him one time when squatted 880 for five or six reps. I saw him pull a 900-pound deadlift once, too. The funny thing is, he trained with Brian Dobson and me one time, and we killed the guy! He wasn't used to doing so many reps like we did, around 12 per set, and he sure wasn't used to only resting a minute between sets like we did. As far as other guys who trained with me, no, none of them ever really were ever able to use the weights I did. ■

### CHECK OUT RONNIE'S WEBSITES

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## The Gifted One

BY RON HARRIS

WITH 4-TIME MR.  
OLYMPIA PHIL HEATH



# THE MEN WHO BEAT PHIL

*Of the 13 men who have held the Mr. Olympia title since the contest's inception in 1965, only five were never beaten again in competition once they had earned that title. They are Larry Scott, Arnold Schwarzenegger, Franco Columbu, Lee Haney and Dorian Yates. It's very likely that Phil Heath could eventually claim that same distinction. For all the noise about Kai Greene and especially Big Ramy threatening to knock The Gift off his throne, these eyes don't see it happening unless Phil competes while he's ill or injured. The sport of bodybuilding is all about finding the physique that displays the best total package of mass, structure, muscle shape, balance, proportion, symmetry, condition and presentation. Right now, I don't see anyone that approaches the sum of parts quite the way Heath does. So with that in mind, assuming Phil retires when he is still at the top of his game rather than linger on past his prime, he may never be beaten again. Here are the contests where Phil was beaten since turning pro at the 2005 USA, and the men who can always say they beat Phil Heath.*



**2010 ARNOLD CLASSIC –  
SECOND PLACE**

### 2007 ARNOLD CLASSIC – FIFTH PLACE

Phil's rookie season in 2006 consisted of two carefully calculated entries at the Colorado Pro and the New York Pro, both of which he won with ease. The following year, he stepped up to the next level and vied for the Arnold Classic title. Still giving up size and shoulder width, he took fifth in a solid lineup. Winner Victor Martinez was at his best that year, and went on to nearly beat Jay Cutler at the Mr. Olympia a few months later in a controversial decision. Runner-up Dexter Jackson would go on to place behind Jay and Victor at the Olympia, and the following year would claim his own Mr. Olympia title. Third-place finisher Toney Freeman had just won the Iron Man Pro and was approaching his peak. He would have his first and only top-five finish at the Mr. Olympia in 2008. As for fourth-place finalist Gustavo Badell, The Freakin' Rican was just beginning a downward slide from a meteoric mid-'90s rise that saw him place in the top the at the Olympia two years in a row, and even beat champ Ronnie Coleman in the short-lived experiment known as "The Challenge Round." Of that group, only Dexter would ever beat Phil again.

### 2008 ARNOLD CLASSIC – SECOND PLACE

There was no shame in Phil losing here to Dexter Jackson, who won his third out of an eventual five Arnold Classic titles and would go on to win all four other contests he entered that year, culminating in the big daddy, the Mr. Olympia.

### 2009 MR. OLYMPIA – FIFTH PLACE

After eating some fish that had apparently gone bad while transporting it around Las Vegas, Phil was knocked on his ass by food poisoning. Vomiting and diarrhea flattened out his normally full-to-bursting muscles, and he wound up taking his

lowest placing ever at the O. Winner Jay Cutler made a historic comeback in razor-sharp condition, becoming the first champ to ever win his title back after losing it. Runner-up Branch Warren was in what I and many others who were there feel was the best shape of his life, appearing to be carved out of granite. Defending Olympia champ Dexter was third, and reigning Arnold Classic champ Kai Greene rode that wave all the way to fourth place at his Mr. O debut.

### 2010 ARNOLD CLASSIC – SECOND PLACE

This one was a real head-scratcher. Kai won this second consecutive Arnold Classic title, but many were unsure how. After the judging, Phil was in first with a perfect score of five, while Kai had 10 points. At the finals, Kai was given a score of five, while Phil was tied with third-place Branch Warren at 13 points. Honestly, from my point of view, neither man looked very different from the afternoon to the evening, certainly not enough for Kai to suddenly pull so far ahead from behind. Phil wound up with 20 points to Kai's 15, in a decision many didn't agree with. Kai looked really good, but I and many others thought Phil had that show.

### 2010 MR. OLYMPIA – SECOND PLACE

This contest was basically between Jay Cutler and his friend and protégé Phil all weekend. Jay was much bigger and fuller than he'd been the year before, but that insane condition was noticeably absent. The battle was a lot closer than what Jay's eventual eight-point lead on the scorecards would indicate, and a huge portion of the audience felt Phil deserved the win. In fact, the second the decision was announced, about half the audience immediately booed and began walking out. It was Cutler's fourth and final title win—and the next year, Phil's own reign would begin at last. As for anyone who attempts to beat The Gift and end that reign, good luck! You're gonna need it. ■



## Blood & Guts

WITH 6-TIME MR. OLYMPIA  
DORIAN YATES



### BUILDING A BIGGER BACK AT ANY AGE

*Hi Dorian, I am 46 years old and have really only been getting serious about training for about the last two years. I've seen good progress in most areas except my back. Only recently did I realize I had been using mostly my biceps and rear delts on all my back exercises. I think I have the connection to it now, but I wonder if I can even hope to build much of a back at my age. My legs haven't responded nearly as well as my chest, shoulders and arms, so is it true that older guys can't expect to develop a big back and legs?*

No, this is not true at all.

It should be apparent that an older guy won't progress the way a 25 or 30-year-old would, but you have one thing going for you that most men your age who train don't. You've only been training for two years, which means you haven't nearly hit your full potential. You have at least a few more years of good gains to look forward to.

The reason most men, and this goes for all ages, don't often develop good legs or a good back is that these are the two most exhausting

muscle groups to train. Most people simply can't or won't put forth the effort to work them properly—with the amount of weight and intensity they are capable of handling. The back is also tough to train correctly, as you've already discovered. Not being able to see it, as you can all other body parts, makes it immediately more challenging to work. Then you have the fact that the biceps are a weak link, which is often a limiting factor in any back movement with the exception of Nautilus

pulldowns, which is one reason I relied on them so much in my competitive years. Finally, without the proper mechanics during back exercises, you wind up working the traps and the rhomboids more than the lats. You need to concentrate on pulling down and back through a full range of motion (ROM) for best results in recruiting the actual lats.

I also found that a medium or narrow grip allows for a fuller stretch and thus a superior ROM,

and puts the biceps in their strongest mechanical pulling position to minimize that "weak link" factor we noted above. The spine must be arched at the end of each rep to allow for a full contraction of the lats. A rounded back will limit your ROM and thus your results. Since you seem to have a good handle on your back training, take everything I've said into consideration if you aren't already, and you should expect excellent results.

**"WITHOUT  
THE PROPER  
MECHANICS  
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EXERCISES,  
YOU WIND UP  
WORKING THE  
TRAPS AND THE  
RHOMBOIDS MORE  
THAN THE LATS."**

### WHOLE FOOD, NOT BARS, FOR BUILDING MUSCLE

*I have competed for over 20 years, and there is a young guy at my gym who has decided he wants to compete too. He asked me to write him up a diet, which I did. It was pretty basic stuff: chicken, egg whites and fish, along with moderate amounts of rice and potatoes plus veggies. As soon as he saw it, he almost fainted, claiming he couldn't eat all that food. He wants to know if he could just eat protein bars and shakes instead, with little or no real food. I know it's a horrible idea, but I didn't know how to explain to him why it would be stupid. Can you please help me out so I can steer him away from his lazy man's diet?*

It's nearly impossible to get all the nutrients you need from supplements, which is why they are called that. Supplements are meant to complement whole-food intake. We use them for specific purposes in that sense. For instance, protein powders increase protein intake, BCAAs offer advantages over solid protein at certain times such as during and after

training, creatine improves exercise performance and so on. Ultimately, fat loss is a simple equation. If you expend more energy than you are taking in, you will lose fat. But without quality food, you stand a much higher chance that a good percentage of what you lose will also include lean muscle tissue, which obviously is not ideal for a competitive bodybuilder. A high-protein diet is needed to retain muscle mass while dieting. Bars in particular are an iffy proposition. Certainly in the off-season they are convenient, and a better choice than a regular candy bar due to the higher protein content, but most are loaded with sugar alcohol and various fillers that you don't want whilst trying to hone your physique for the stage. ■

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Got a question for Dorian Yates? You can ask him directly on the MD website and have Dorian personally answer your question! Go to [www.musculardevelopment.com](http://www.musculardevelopment.com), MD Forums, No Bull, The DY Zone.



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6x MR. OLYMPIA

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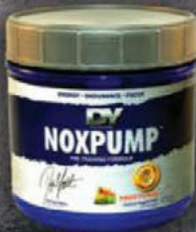


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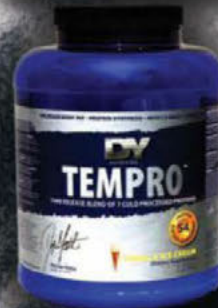
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# ROUND OUT YOUR SHOULDER MASS AND TRICEPS WITH THE SEATED BRADFORD PRESS

I used to know a bodybuilder (George) who had average muscle groups except for his deltoids, which were outstanding. However, when it came to shoulders, George pounded them until he could not lift his arms. While this kind of unnatural, body part-specific mass is somewhat rare, it was painfully clear from this genetic freak—and others who I have known over the years—that even if genetics are on your side, you need to attack each workout like there will not be a chance for another one tomorrow. In other words, it will not be easy to build superb shoulders.

The late Jim Bradford was an accomplished Olympic lifter who won two silver Olympic medals and multiple silver awards at the world

championships in the 1950s, and he knew something about shoulders. Bradford popularized an alternating front and behind-the-neck shoulder press that was credited to him and named the “Bradford press.” It turns out that this exercise not only devastates the muscle fibers positioned along the anterior, middle and even a little of the posterior region of the shoulder, but it also activates the triceps and trapezius muscles.

## MUSCLES FIBERS ACTIVATED

The deltoid muscle has three primary origins on the bony portions of the shoulder. The anterior fibers of the deltoid are anchored along the lateral part of the clavicle (collarbone). The posterior fibers attach along the upper and posterior side of the scapula<sup>2</sup> (shoulder blade). The medial fibers of the deltoid originate from regions between the previous two origins along the acromion of the scapula (the

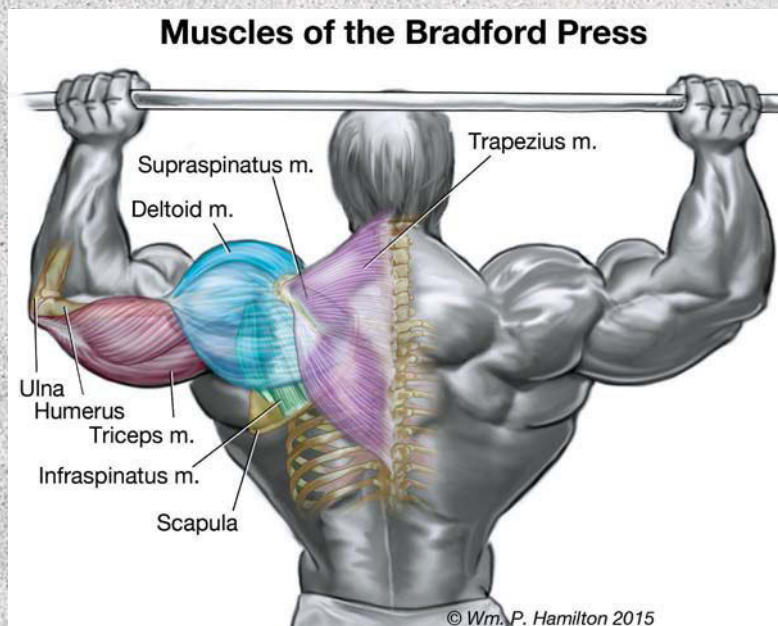
point of the shoulder). The fibers of the deltoid converge on the anterior and upper portion of the humerus bone.<sup>2</sup> The anterior fibers of the deltoid produce strong flexion of the humerus at the shoulder, bringing the humerus bone of the upper arm forward<sup>1</sup>, during the upward part of the Bradford press. The medial fibers primarily produce abduction of the humerus (raising the humerus away from the side of the body).<sup>2</sup> Additionally, the medial fibers are very active to support the humerus during the lift upward in the Bradford press.<sup>1,3</sup>

The three-headed triceps brachii muscle is activated on each press upward. The long head of the triceps brachii is the “inner head.” It begins

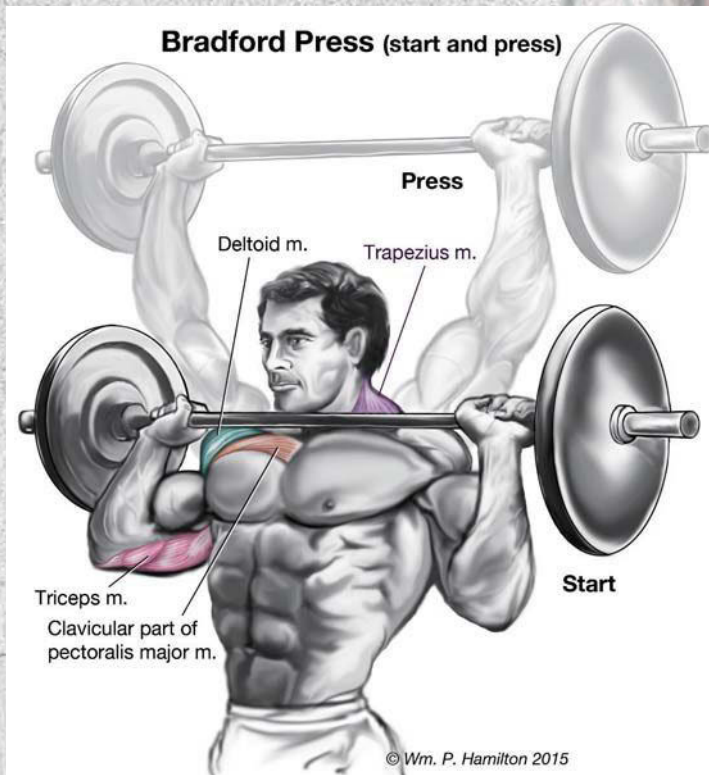
on the scapula bone (shoulder blade) just inferior to (below) the head of the humerus bone at the shoulder joint.<sup>2</sup> The lateral head of the triceps brachii is anchored to the posterior part of the humerus bone of the upper arm, partway toward the shoulder joint.<sup>2</sup> The medial head of the triceps brachii begins along the upper, posterior part of the humerus bone and resides deep between the other two heads of the triceps brachii. Each head of the triceps extends down to the back of the arm, where it joins the tendons from the other triceps heads to form a common triceps tendon at the elbow.<sup>2</sup> The triceps tendon crosses the elbow joint to connect to the posterior side of the ulna bone of the forearm, near the elbow.<sup>2</sup> All three heads of the triceps brachii

extend the forearm to press the weight overhead in the Bradford press.

The Bradford press also hits the upper part of the trapezius muscle, which starts along the base of the skull and the seventh cervical vertebra, and runs to attach on the lateral part of the clavicle (collarbone) and

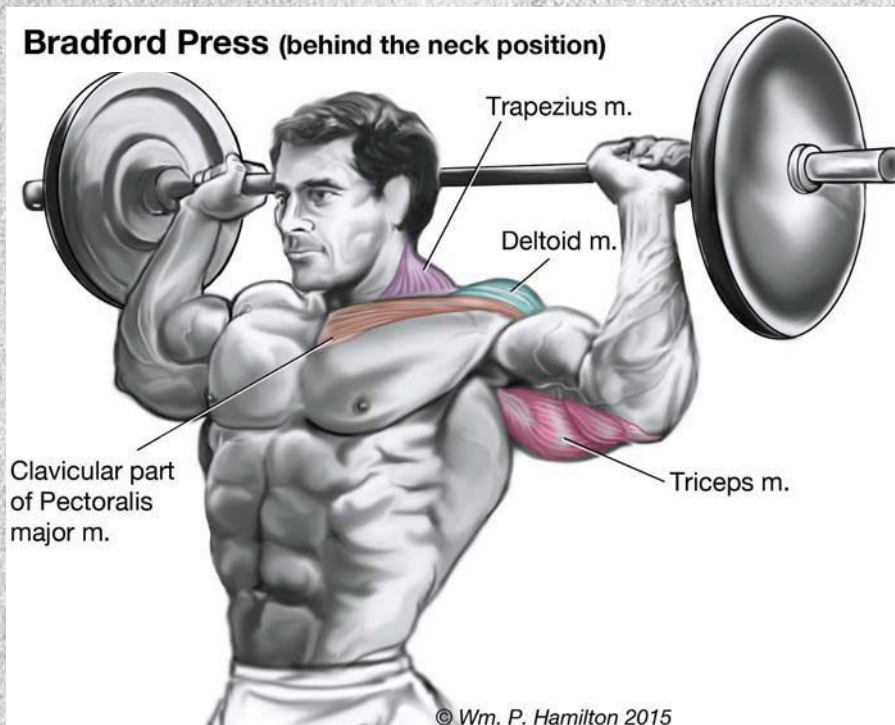






along the scapula.<sup>2</sup> The superior fibers lift and rotate the scapula and shoulder structures toward the ears as the bar moves upward.

Try to avoid locking out your elbows, and as a result, your triceps and shoulders will be continuously under stress—and your rotator cuff muscles will not be put under too much of the wrong kind of stress. You can also do partial presses where you would not extend the elbows as far, but just press the bar a few inches over your head for each rep. This version really fries the shoulders, and places less emphasis on the trapezius.<sup>4</sup> Either version means



## BRADFORD PRESS

1. Place a barbell on a seated shoulder press station. Sit on the bench with your back pressed firmly in to the back pad. Take a the bar off the rack like you would during a seated shoulder press.
2. Drop the barbell to the clavicles in front of your face, then press the barbell upward by extending your elbows until they are almost but not completely straight, and the bar is over your head.
3. Control the lowering of the barbell, but direct it behind your head. Continue the descent of the weight behind your neck, and stop when it is at the base of your skull. Be careful to avoid hitting your neck.
4. Press the weight upward as if you were doing a press behind the neck. Continue pushing the bar until it is over your head, and then bring it to the front of your face as if you were doing a military shoulder press.

that you will not be lifting superhuman weights, and you should aim for something in the 10-12 rep range.

Changing up your exercises can reenergize your deltoid fibers and get them growing again. Bradford presses (also called “Rocky” or “rainbow” presses) will pile on mass to the anterior and middle parts of your deltoid muscles and will thicken the upper trapezius and triceps, because the exercise hits the fibers directly and powerfully with constant tension. While they are not heavy, this is by no means an easy exercise, so do it early in your workout.<sup>5</sup>

When you hit it correctly, control the weight on the way down, push with significant effort on each repetition and maintain constant tension, your shoulders should be totally burned at the end of your set of Bradford presses. However, the intensity of your efforts will force each fiber to stretch and swell with each contraction, so that your shoulders will begin to take on that freakish growth look, even if you were not blessed with great genetics. ■

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# BOOBS: MILKING YOUR GAINS?

**WHAT ARE YOUR THOUGHTS ON THE RECENT NEWS THAT BODYBUILDERS ARE BUYING BREAST MILK ONLINE FOR ITS SUPPOSED MUSCLE-BUILDING PROPERTIES?**

ABC News apparently ignited this February's media frenzy.<sup>1</sup> Google "breast milk bodybuilding" and you'll see what I mean.<sup>2</sup> The volume of "me too" news reports and their sensationalized tone might suggest a massive army of muscleheads trolling the Internet for lactating women. Is there any truth to it? Well, lactating women are definitely out there, selling their milk for babies who need it via online sharing communities like "Eats on Feets" or commercial sites like "Only the Breast." Human breast milk is full of good stuff and is designed to make babies grow rapidly. But would it pack pounds of muscle on an adult?

Actually, breast milk probably wouldn't do jack for muscle growth, according to every nutrition expert I spoke with. Doug Kalman, Ph.D., RD, co-founder of the International Society of Sports Nutrition, said, "Human breast milk is calorie-rich, nutrient-dense and the richest source of immunoglobulins (colostrum, for example) responsible for 'turning on' the immune system of infants. But there's not a shred of scientific evidence to suggest it builds muscle in adults." And averaging \$2.50 per ounce, who could afford it in volume? Why spend \$160 for a half-gallon of breast milk when you can get 70 percent more protein in a half-gallon of cow's milk for only three or four bucks?

There are some other very good reasons to avoid getting human milk online. A 2013 study found that human milk purchased via the Internet showed high bacterial growth and frequent contamination<sup>3</sup>, while a 2015 study found that some samples of online donor milk were contaminated with cow's milk.<sup>4</sup> Jesse Kwiek, Ph.D., associate professor of microbiology at Ohio State and co-author

of the studies, describes the "4 Ds" of buying breast milk online: "Disgust (bacteria and viruses<sup>5</sup>), Dilution (cow's milk), Drugs (both narcotics and pharmaceuticals) and Deception (seller claims to be a non-smoker, for example, but tests show nicotine in the milk)."<sup>6</sup> Note that the U.S. Food and Drug Administration (FDA) warns against feeding babies breast milk obtained from others or over the Internet.<sup>7</sup>

So, are lots of bodybuilders really doing it? There was a 2010 forum post that made the rounds of the online message boards, extolling breast milk as "the greatest supplement ever." One online poster boasted that, "I started using it as the cornerstone of my diet, and started growing beyond measure." The post claimed that various IFBB pros drank breast milk regularly, and that even Arnold and Tom Platz "accredited much of their gains to breast milk." Really?! It obviously sounded like the forum was being punked. But just to be sure, I asked a variety of today's top pros, NPC athletes, bodybuilding journalists and even ordinary gym rats about the post. "I'm calling it BS that guys from the '70s, '80s and '90s used breast milk," laughed Peter McGough, MD's resident historian and a journalist who was as close as any one to the pros of that era. "They used to talk about everything with me— training, diet, drug protocols, personal stuff. Never in that time did anyone mention breast milk, and they did mention some pretty weird stuff. As Arnold said, 'Milk is for babies. When you grow up, you have to drink beer.' I rest my case."

Peter's sentiments about Internet breast milk for bodybuilding were echoed by others. Nobody I spoke with could name a single



recognized bodybuilder who advocated the practice. So the consensus is: prank post. But while saying it was the stupidest thing he'd heard lately, MD's Bob Cicherillo cautioned, "Bodybuilding can sometimes get pretty extreme— who knows what a few random nuts might be doing out there?" He's right. If we looked hard enough, we'd find some desperate bonehead drinking his own urine for its "vital nutrients" (one deceased pro reportedly did that, although he later denied it). But a couple of isolated lactate-loving whackos hardly make a phenomenon worth writing about. Maybe the real story is the gullibility of the mainstream media? Anyway, when it comes to Internet breast milk for bodybuilding, don't be a sucker. Did the public really need a dozen news reports to be informed that buying unregulated human body fluids from strangers online was a bad idea? ■

Rick Collins, JD, CSCS [www.rickcollins.com] is the lawyer that members of the bodybuilding community and nutritional supplement industry turn to when they need legal help or representation. [© Rick Collins, 2015. All rights reserved. For informational purposes only, not to be construed as legal or medical advice.]

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# EXERCISE ORDER— WHAT YOU NEED TO KNOW!

*Hi Charles, I am 57 years old but I am still new to training. It was only a year ago that I finally decided to get in some kind of shape. I have been reading MD for information, but it seems to be geared toward more advanced lifters. Can you please help me out? Does it matter what order you do your exercises in? Today I did biceps and then back. Was that OK? I think I have heard to work larger body parts first, but I don't know if that's correct or not.*



Working larger body parts first is a good rule of thumb to follow, mainly because they require more of your energy to train. It's a lot more demanding to train something like back or chest than it is to work a smaller muscle group like the biceps or triceps. But a far more critical concept for you to understand and apply is to never train a body part before another in which that muscle assists. You gave me a great example of breaking this cardinal rule by telling me that you worked biceps before back. The back is trained with compound movements like rows, lat pulldowns, pull-ups and deadlifts. All of those exercises are pulling movements, and your biceps play an important role in each of them. Furthermore, they happen to be a weak link. If you think about how big and strong the lats are compared to your smaller and weaker biceps, that makes sense. So that's why fatiguing the biceps first with isolation movements for them like barbell and dumbbell curls is a terrible idea. If you go from there to your back exercises, now your biceps are even weaker compared to the lats. You won't be able to handle as much weight on your back movements, because your biceps, which as we said are used in any pulling motion, are already tired.

The same rule applies to the triceps when it comes to training the chest or shoulders. It's a little trickier in this case because we do work the chest with isolation movements such as flyes that don't involve the triceps, and we do various forms of lateral raises for the deltoids that don't involve the triceps either. But you also need to work the chest with various pressing movements such as incline, flat or decline presses, as well as dips. And the shoulders always need some type of overhead press to train them properly. The triceps contribute toward any movement where you push weight away from your body using the arms.

***“Working larger body parts first is a good rule of thumb to follow, mainly because they require more of your energy to train. But a far more critical concept is to never train a body part before another in which that muscle assists.”***

Another fact to consider is that the anterior or front delts are also involved in any pressing motion. So you wouldn't normally want to do those before an overhead press for shoulders. Some people like to do chest and shoulders in the same workout. It makes sense if they are a strong point especially, because that gives you more time to focus on other areas that may need improvement. If you do it, make sure you work chest first and then shoulders.

One way you can work the smaller arm muscles first is if they aren't involved in the compound movements for the larger body part you'll be doing second in the workout. For instance, you could train biceps before either chest or shoulders, or triceps before back.

One exception to all this pertains to the legs. The quadriceps are the target muscle for most of us when we do squats, leg presses or hack squats, but these movements also involve the glutes, hamstrings and calves. It's OK to do leg extensions first in a leg workout for a couple of reasons. One, they are excellent for warming up the knees and getting blood flowing to your quads. Second, they pre-exhaust the quads so they will fatigue faster in your compound movements. This is ideal for those who have a problem with their hips and glutes taking over on squats and leg presses, which isn't uncommon. You'll be using a bit less weight, but you'll be working your quads much harder if you do extensions first. ■

Got a question for Charles? Email it to him at [editor@musculardevelopment.com](mailto:editor@musculardevelopment.com) and you could see it answered right here in MD!





# SARMs: THE 'NEW AGE' ANABOLICS

SARMs (selective androgen receptor modulators) exhibit properties similar to traditional anabolics, without the side effects. SARMs are currently in advanced-stage tests to treat a number of ailments. As more and more pros and competitors use SARMs, it has become apparent that they are the "new age" anabolic to add to protocols, as they have been shown to enhance all competitors. The last decade has witnessed an unprecedented discovery effort to develop SARMs that improve physical function and bone health, without adversely affecting the prostate and cardiovascular systems.

SARMs are a relatively new class of research compounds with effects similar to testosterone and other anabolics. Another benefit is that SARMs can be taken orally. SARMs hold great promise as a new class of function-promoting anabolic compounds for a number of clinical conditions, including functional limitations associated with aging and chronic disease, frailty, cancer cachexia, AIDS wasting and osteoporosis.

Current SARMs on the market that competitors have been benefiting from greatly include:

**IBUTAMOREN (MK-677)** is a potent, pharmaceutical grade, orally administrated growth hormone secretagogue. A secretagogue is a substance that chemically signals for the pituitary gland to secrete growth hormone. Growth hormone secretagogue was developed to combat such conditions as muscle wasting, obesity and osteoporosis.

Ibutamoren mimics the growth hormone-stimulating action of the endogenous hormone ghrelin. It has been demonstrated that ibutamoren increases the release of, and produces sustained increases in, plasma levels of several hormones—including growth hormone and IGF-1, but without affecting cortisol levels. Ibutamoren is currently under development as a potential treatment for those suffering from reduced levels of these hormones, such as in growth hormone-deficient children or elderly adults.

Human studies have shown ibutamoren to increase both muscle mass and bone mineral density, making it a promising therapy for the treatment of frailty in the elderly. It also alters the metabolism of body fat, so it may have application in the treatment of obesity. Elevated growth hormone levels provide many ongoing benefits, ranging from increased lean muscle mass to improved sleep. Ibutamoren is a great addition to anyone's cycle because of its versatility.

**Dosage:** Results have been shown from doses between five to 25 milligrams per day; dose-dependent results should be expected. At the higher dosages, be on the lookout for the usual side effects that have been reported with traditional growth hormone such as numb hands, some lethargy as well as a slightly increased appetite.

**OSTARINE (MK-2866)** displays a very anabolic effect on muscle tissue. It increases lean muscle mass, and is excellent for increasing bone and ligament strength, healing as well as prevention of muscle wasting. One of the outstanding highlights

of ostarine is that it doesn't just build muscle—it increases tendon strength, improves the health of the ligaments, increases bone density and increases the rate at which collagen is turned over. It has often been compared to traditional anabolics such as Primobolan and oral Turinabol.

Ostarine doesn't convert to dihydrotestosterone (DHT) or display any of its side effects, which may include an enlarged prostate and hair loss, among others. Ostarine promotes considerable and easy-to-maintain gains in muscle over four to six weeks, with little-to-no side effects and no real post-cycle therapy needed afterward.

**Dosage:** In a bulking cycle, 25-50 milligrams per day. In a cutting cycle, 15-25 milligrams per day. In women, three to 15 milligrams per day has been shown to be effective.

**ANDARINE (S4)** is non-methylated, so it won't harm your blood pressure or liver. Andarine provides an overall sense of well-being, and full PCT (post-cycle therapy) is not necessary. There is no threat of estrogen-related side effects, and there is no need for a long "off" period between cycles.

Andarine has properties very similar to pre-contest anabolics, which makes it the perfect SARM to use to harden your physique. Andarine offers better lean muscle gains than most of these anabolics. It also shows a reduction in lipoprotein lipase (LPL)—an enzyme that causes lipid accretion, aka hardens your muscles.

Andarine also reduces fat while sustaining and even increasing muscle mass in a hypocaloric atmosphere. It also enhances vascularity, giving you an aesthetic, hard look with little to no water retention. Unlike anabolics and testosterone, andarine won't affect your joints, but instead boosts muscle mass and strength. And there are no excruciating pumps.

The best part of andarine is that it causes a drying out of the muscle and the skin surrounding it—and in turn, it binds very well to the androgen muscle receptors, hardening and sharpening the muscle. It should be used as a pre-contest hardener, combined with other muscle-hardening compounds.

Andarine causes significant fat loss by binding to the androgen receptors. It allows fat to be oxidized, and it has potent nutrient-partitioning effects, causing more calories to be used to build and repair muscle. In addition, it has mild anti-estrogen qualities, and will lower estrogen to complete that hard, illicit look we are all after as bodybuilders.

**Dosage:** 30 to 60 milligrams per day, depending on goals and experience.

To contact me, please email me at [fakpro@aol.com](mailto:fakpro@aol.com). I'm on Instagram at [instagram.com/fakhrimubarak\\_ceo\\_ifbbpro](https://www.instagram.com/fakhrimubarak_ceo_ifbbpro), on Facebook at <http://www.facebook.com/FakhriMubarak> and on Twitter. Have a great month, everyone and as always: "Champions do what competitors don't!"





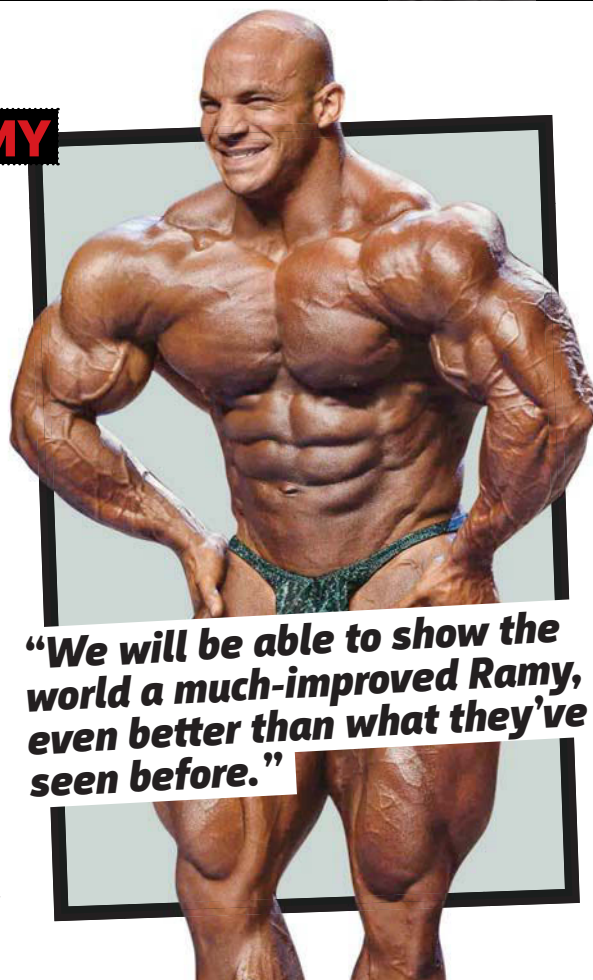


## A BETTER AND BIGGER RAMY

*Guru, I want to congratulate you on Big Ramy's win at the Arnold Classic Brasil. I have heard a few people (haters) talking about how he wasn't in shape or that he wasn't ready. Why do these people hate on you, sir? To be honest, my friends and I all noticed how good, healthy and full Big Ramy looked for the first time since he came on the scene. What is Big Ramy's state of mind, and how is he feeling after working with you? What do you expect at the Olympia? Take care, and please keep on making champions.*

Thank you, brother, for your kind words. Yes, I have heard the same thing from a few individuals calling me liar or dishonest, etc. I won't dwell on the negativity that some individuals bring to the sport that we all love and live for. I just want us to talk about the good things in bodybuilding, and not worry about what people think of me as an individual, and let God sort things out.

As far as Big Ramy, he told me on a few occasions that he thinks his prayers were answered when he started working with me, and he couldn't be any happier. At the Mr. Olympia, we should be able to see a much-improved Ramy. As I write this, Ramadan is about to start in a few days and as a man of religion, Ramy will be fasting for the whole month of Ramadan. This will leave him with only eight hours to consume as much food as his body will allow him. It is going to be hard, but the champ will have a good eight weeks after Ramadan to be in full swing for the Olympia. I think we will be able to show the world a much-improved Ramy, even better than what they've seen before.



**"We will be able to show the world a much-improved Ramy, even better than what they've seen before."**

## THE POWER OF WALNUTS



***With many of the athletes you work with, you post their diets online and the diets include walnuts. Why is this? Is there anything I should know about walnuts?***

Wow, someone finally caught the secret. Good question and yes, you are absolutely right—I do add walnuts to many diets that I give my clients. If you look at the research about all kinds of nuts from the many studies out there, walnuts score very high, especially for people in our sport of bodybuilding. Walnuts are a source of an amazing essential fatty acid, which means our own body can't produce it and it must be supplied. In addition, walnuts have the added benefit of protecting many organs, including the liver.

It's funny that I was just reading a new study about the benefits of walnut consumption the other day. I have been including this great, powerful, essential food in many diets for almost a decade now, and researchers are still finding more benefits of eating walnuts. A 10-year walnut study looked at a large number of individuals who ranged in age from 55 to 69. Researchers found that consuming an extra 10 grams of walnuts a day can expand your life by 23 percent. Who in their right mind doesn't want a healthy liver, better muscles and longer life span?

Eating walnuts also gives you a great feeling of fullness before going to bed—and keeps you in an anabolic state while you sleep when you mix the walnuts with casein, as I normally do.

Until next time, stay focused and most importantly, healthy. Your friend in iron, George Farah. ■

George Farah is presenting his opinions and he does not, in any way, shape or form, encourage or condone the use of any illegal or controlled substances. Nothing contained herein is to be construed as medical advice. Use of any drugs and exercise regimen should only be done under the directions and auspices of a licensed physician. The writer does not claim to be a medical doctor nor does he purport to issue medical advice. Follow George Farah on Facebook at <https://www.facebook.com/georgefarahdietguru> or on Twitter @gvfarah. For more information, visit [www.georgefarah.net](http://www.georgefarah.net).





# BUILDING A BIGGER DALLAS

As you all know now, Dallas McCarver won his pro debut this past May at the California Pro. It was our first contest-prep together, but we have been working together for well over two years now.

Dallas turned pro at the age of 21 in the summer of 2012, at the IFBB North American Championships. He contacted me toward the end of that year after having just left his old coach. Dallas wasn't happy with his methods, and was interested in me taking him on. I saw a great deal of potential in him, given the fact that he was only 22 years old, and at 6'1", had a tremendous frame and structure. That frame needed a lot of filling out, but you have to keep in mind that at the time he turned pro, he had only been bodybuilding for about a year and a half. After speaking with Dallas, I agreed to take him on as a client.

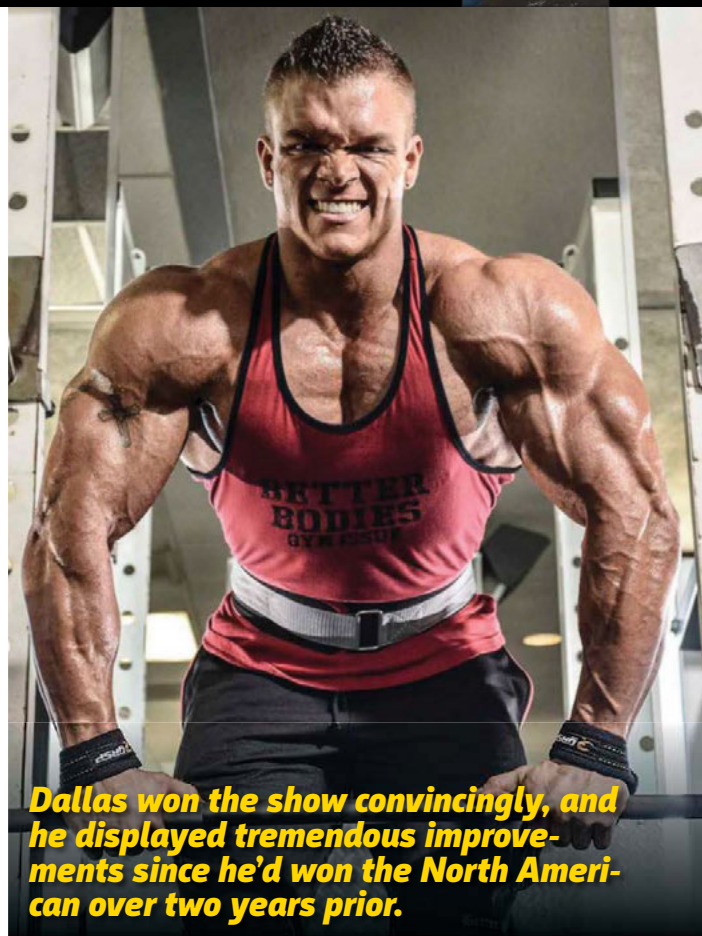
We didn't even think about competing again anytime soon. I knew we would need a solid year at the very least before those considerations would be made. He came to me burnt out and not feeling well, so the first few months were devoted to getting him healthy and fully recuperated, in effect resetting his body before we began the true off-season program. From there, the goal was to gradually build lean muscle at a steady pace without taxing his system. This type of steady progression had worked extremely well a few years before with Phil Heath.

The main areas that needed

improvement were his chest, back and legs, which tend to be issues for taller men with large frames in general. We wanted to give him a rounder, more 3-D look, which doesn't happen overnight. We switched up his training to include more volume, worked on increasing his strength and strove to develop a better mind-muscle connection. Ironically, it wasn't until Dallas was actually able to train with me toward the end of 2014 that he truly understood and applied the intensity I wanted from him in his workouts. I put him through a leg workout, and he was throwing up about halfway through. His gains were fairly dramatic from that point on. It's one thing to follow a workout your coach gives you, but it's quite another to have your coach pushing you through it and demanding far more from you than you ever thought possible. After that workout, Dallas really got it— and his workouts were on a whole other level.

His nutrition had been on the extreme side in the past, essentially stuffing himself and going very high on protein. We reduced that protein intake to allow for a better balance of macronutrients, with more complex carbohydrates and healthy fats.

It was in late 2014 that we sat down and talked about which contest to make his pro debut at. We both agreed that a May show would work well for both of us. Looking at the IFBB contest schedule, I saw that the California Pro was in late May. I had a trip to Kuwait that I could



**Dallas won the show convincingly, and he displayed tremendous improvements since he'd won the North American over two years prior.**

cut short a bit to accommodate it. We targeted that event, and I was able to spend the final four or five days in LA with Dallas to guide him through the final stage of prep.

Dallas won the show convincingly, and he displayed tremendous improvements since he'd won the North American over two years prior. He was nearly 25 pounds heavier and in far better condition, meaning the net muscle gain was even greater than what the scale indicated. I was satisfied with the improved overall thickness, his fullness and his condition. The only aspect I was unhappy with at the judging was his color, which was a bit caked and muddy. After judging, he rinsed off that color and applied a different product, which looked far better on him for the finals. His toughest competition came from runner-up Feras Saied, who was thicker and had superior muscle maturity. Dallas basically beat him on shape. Tragically, Feras died just a week later in a motorcycle accident in Dubai. My condolences go out to his family and friends.

Congratulations to Dallas on winning his long-awaited pro debut. ■

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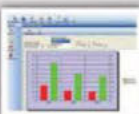


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